



PIONEER®
The future of sound and vision.

Service Manual

Original



The photo shows the model BP-880.

ORDER NO.
CRT1111

GRAPHIC EQUALIZER/AMPLIFIER

BP-880

UC, EW, ES

BP-650

UC, EW, ES

BP-450

UC, ES

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PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.

PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada

PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium

PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

1. SPECIFICATIONS

• BP-880

Power source	14 V DC (10.8 – 15.6 V allowable)
Grounding system	Negative type
Max. current consumption	7 A
Dimensions (chassis size)	178(W) × 25(H) × 150(D) mm [7(W) × 1(H) × 5-7/8(D) in.]
(overall dimensions)	178(W) × 25(H) × 163(D) mm [7(W) × 1(H) × 6-3/8(D) in.]
Weight	1.0 kg (2.2 lbs.)
Continuous power output	8 W per channel min. into 4 Ω, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output (BP-880/UC)	20 W × 4 (EIAJ)
Continuous power output (BP-880/EW, ES)	10 W × 4 (1% dist. at 1 kHz)
Load impedance	4 Ω (4 – 8 Ω allowable)
Frequency response	25 – 30,000 Hz (± 3 dB)
Signal-to-noise ratio (BP-880/UC)	85 dB (IHF-A network, at 1 W)
(BP-880/EW, ES)	85 dB (IEC-A network, at 1 W)
Distortion	0.5% (at 1.5 W, 1 kHz)
Input level (BP-880/UC)	RCA: 0.2 – 1 V/10 kΩ BOOSTER: 1.2 – 6 V/24 Ω
Input level (BP-880/EW)	DIN: 70 mV/20 kΩ BOOSTER: 3 V/24 Ω
Input level (BP-880/ES)	DIN: 40 – 200 mV/20 kΩ RCA: 0.2 – 1 V/10 kΩ BOOSTER: 1.2 – 6 V/24 Ω
Equalization frequency	60 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 3.5 kHz, 10 kHz
Equalization range	± 12 dB

• BP-650, 450

Power source	14 V DC (10.8 – 15.6 V allowable)
Grounding system	Negative type
Max. current consumption	4 A
Dimensions (chassis size)	178(W) × 25(H) × 135(D) mm [7(W) × 1(H) × 5-3/8(D) in.]
(overall dimensions)	178(W) × 25(H) × 148(D) mm [7(W) × 1(H) × 5-7/8(D) in.]
Weight (BP-650)	0.9 kg (2.0 lbs.)
(BP-450)	0.8 kg (1.8 lbs.)
Continuous power output	12 W per channel min. into 4 Ω, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output	25 W × 2 (EIAJ)
Continuous power output (BP-650/EW, ES, 450/ES)	16 W × 2 (1% dist. at 1 kHz)
Load impedance	4 Ω (4 – 8 Ω allowable)
Frequency response	20 – 30,000 Hz (± 3 dB)
Signal-to-noise ratio (BP-650/UC, 450/UC)	85 dB (IHF-A network, at 1 W)
(BP-650/EW, ES)	85 dB (IEC-A network, at 1 W)
Distortion	0.3% (at 1.5 W, 1 kHz)
Input level (BP-650/UC)	RCA: 0.2 – 1 V/10 kΩ BOOSTER: 1.2 – 6 V/24 Ω
Input level (BP-650/EW)	DIN: 70 mV/20 kΩ BOOSTER: 3 V/24 Ω
Input level (BP-650/ES)	DIN: 40 – 200 mV/20 kΩ RCA: 0.2 – 1 V/10 kΩ BOOSTER: 1.2 – 6 V/24 Ω
Input level (BP-450)	3 V/24 Ω
Equalization frequency	60 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 3.5 kHz, 10 kHz
Equalization range	± 12 dB

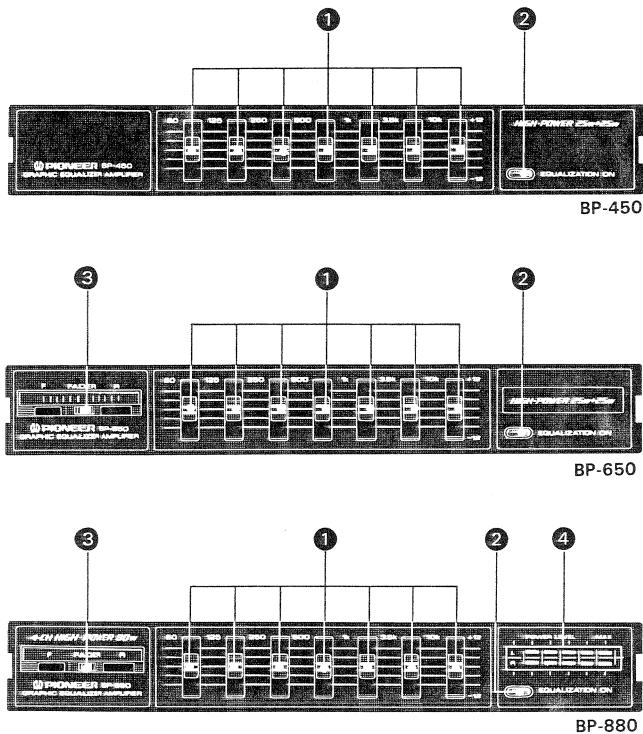
These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

2. OPERATION

• Controls and Their use (ES Model)



• Connecting the units (ES Model)

- Before making final connections, make temporary connections then operate the unit to check for any connecting cord problems.
- Be sure to connect only a single component as shown in the connection diagram. If two or more components are connected, internal circuitry may be damaged or an accident may occur. (BP-880, BP-650)
- When using this unit in combination with a car stereo equipped with RCA pin jacks, see the section entitled "When combined with a car stereo with RCA pin jacks." (BP-880, BP-650)
- Be aware that connection is different between 2-speaker system and 4-speaker system. Failure to follow the wiring diagram may cause considerable loss of power even when fader control is at the center position. (BP-650)
- A special BPTL circuit is used to be sure that you do not connect the speakers directly to ground nor join the left and right speaker (-) leads.
- For detailed information concerning connections between different components and this unit consult their respective owner's manuals and follow those recommendations precisely.
- Wire all connecting cords so that they stay well clear of high-temperature areas such as the heater exhaust port.
- Be sure to properly connect the color-coded leads. Failure to do so can cause malfunctions.

① Equalizer Control

Slides up and down to allow adjustment to suit both the music and individual tastes. Pressing the equalization switch causes each indicator to illuminate.

② Equalization Switch

Press to activate the equalizer control function and illuminate the indicator on the equalizer control lever.

③ Fader Control (BP-880, BP-650)

Adjusts the sound balance between the front and rear speakers when the unit is being used in a 4-speaker system. As the control is moved to the left, the rear speakers are faded out until the front speakers are operating alone; as the control is moved to the right, the front speakers are faded out until the rear speakers are operating alone.

Important Note (BP-880)

- When listening to a 2-speaker system, position this lever at dead center.

④ Level Indicator (BP-880)

Green and red indicators illuminate corresponding to the left/right output levels.

- If your car stereo has a fader control, set it to the center position.
- Changes in low-pitched sounds may not be discernible even when the 60Hz frequency level is adjusted if the program source does not include components in the 60Hz vicinity or if the small diameter speakers are used.

Input Selector (BP-880, BP-650)

Be sure to set the input selector before wiring. (Fig. 1)

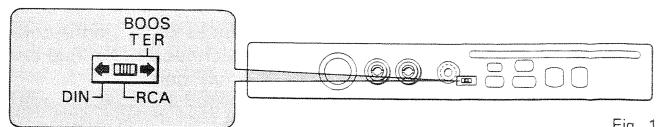


Fig. 1

DIN: When connecting the unit to a car stereo with DIN cord.

RCA: When connecting the unit to a car stereo with RCA pin jacks.

BOOSTER: When connecting the unit to a regular car stereo (unequipped with RCA pin jacks).

Gain Control

When gain adjustment is required, make adjustments with a screwdriver. (Fig. 2)

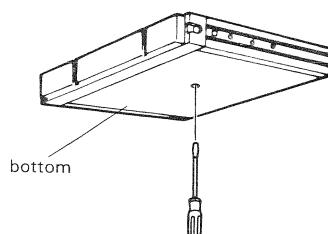


Fig. 2

- BP-650/ES (2-Speaker System)

When Combined with a Car Stereo with DIN cord

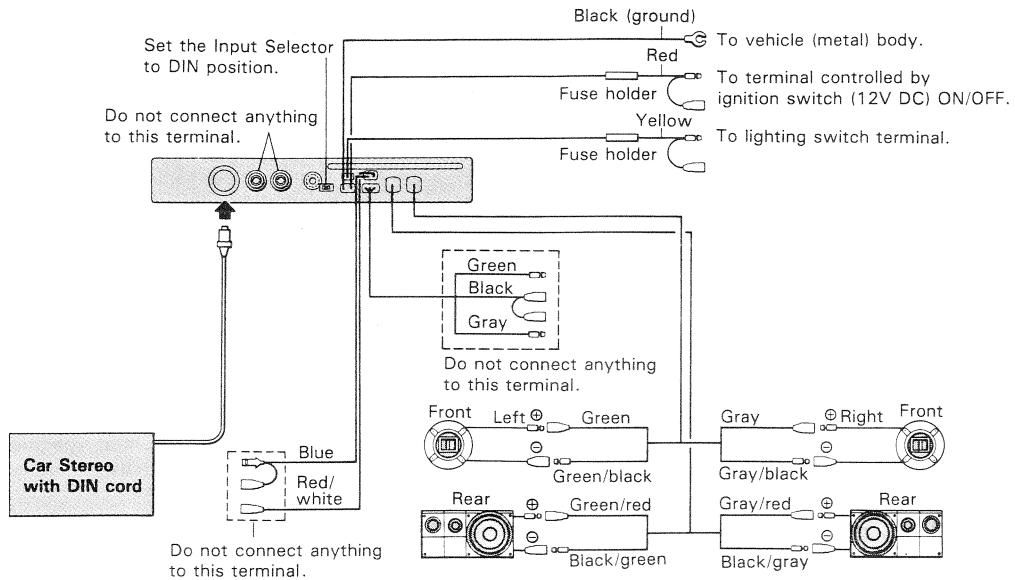


Fig. 8

- BP-880/ES, 650/ES (4-Speaker System)

When Combined with a Car Stereo with RCA Pin Jacks

- When using the BP-880 in a 2-speaker system, use either the front speaker cords or the rear speaker cords for connection as appropriate.

Note 1

- If the car stereo has a blue lead (system control terminal), connect it to the blue lead (male) of this unit, without connecting anything to the red/white lead of this unit. If the car stereo does not

- have a blue lead (system control terminal), connect the red/white lead or red lead of the car stereo to the red/white lead of the unit.
- The blue lead of a PIONEER car stereo to be connected to the unit may have an auto-antenna terminal. If it does, it cannot be connected to the blue lead (system control terminal) of the unit, so read the section on connections in the car stereo's owner's manual. If no sound comes from the speakers during the playing of a tape after they have been connected to the unit, connect the red/white or red lead of the car stereo to the red/white lead of the unit.

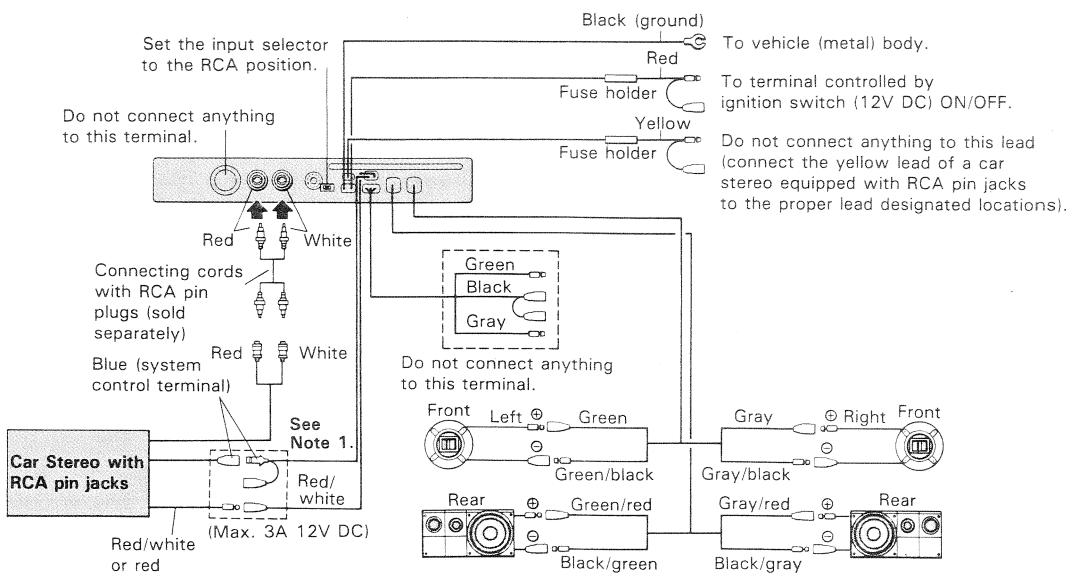


Fig. 9

- BP-650/ES (2-Speaker System)

When Combined with a Car Stereo with RCA Pin Jacks

Note 1

- If the car stereo has a blue lead (system control terminal), connect it to the blue lead (male) of this unit, without connecting anything to the red/white lead of this unit. If the car stereo does not have a blue lead (system control terminal), connect the red/white lead or red lead of the car stereo to the red/white lead of the unit.

- The blue lead of a PIONEER car stereo to be connected to the unit may have an auto-antenna terminal. If it does, it cannot be connected to the blue lead (system control terminal) of the unit, so read the section on connections in the car stereo's owner's manual. If no sound comes from the speakers during the playing of a tape after they have been connected to the unit, connect the red/white or red lead of the car stereo to the red/white lead of the unit.

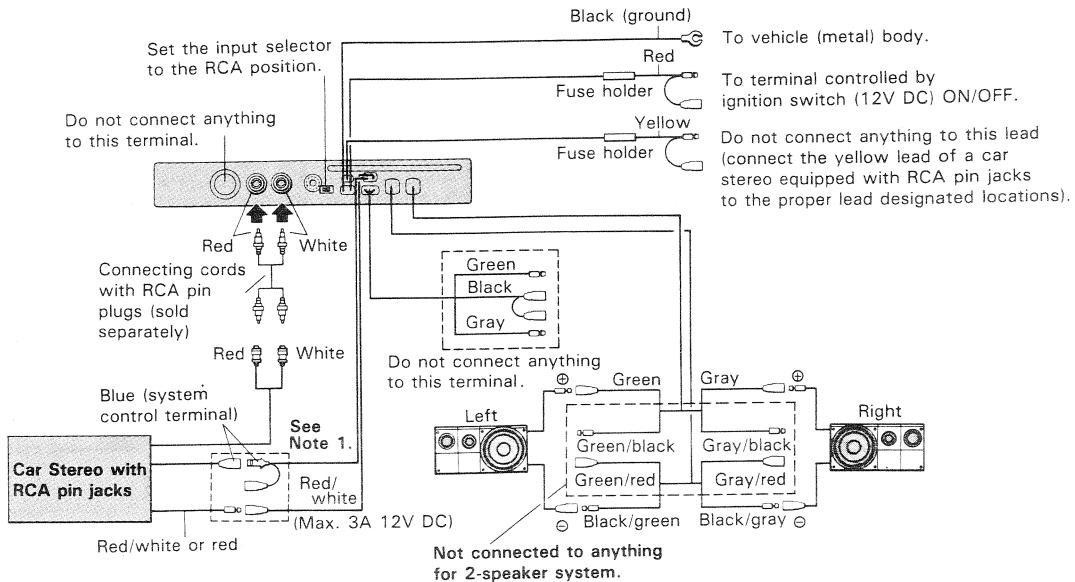


Fig. 10

- BP-880/ES, 650/ES (4-Speaker System)

When Combined with a Regular Car Stereo (Unequipped with RCA pin jacks)

- When using the BP-880 in a 2-speaker system, use either the front speaker cords or the rear speaker cords for connection as appropriate.

Note 1

- If the car stereo has a blue lead (system control terminal), connect it to the blue lead (male) of this unit, without connecting anything to the red/white lead of this unit. If the car stereo does not

have a blue lead (system control terminal), connect the red/white lead or red lead of the car stereo to the red/white lead of the unit.

- The blue lead of a PIONEER car stereo to be connected to the unit may have an auto-antenna terminal. If it does, it cannot be connected to the blue lead (system control terminal) of the unit, so read the section on connections in the car stereo's owner's manual. If no sound comes from the speakers during the playing of a tape after they have been connected to the unit, connect the red/white or red lead of the car stereo to the red/white lead of the unit.

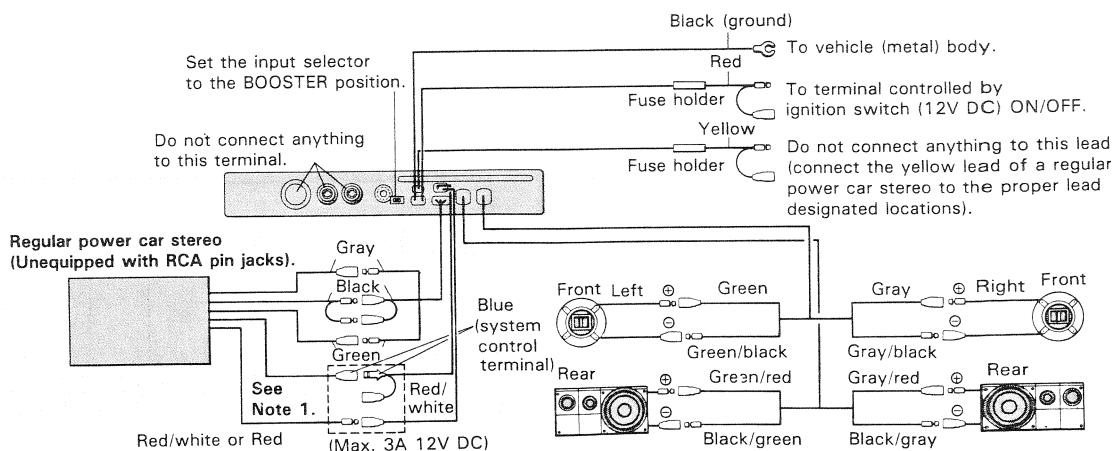


Fig. 11

- BP-650/ES (2-Speaker System)

When Combined with a Regular Car Stereo (Unequipped with RCA pin jacks)

Note 1

- If the car stereo has a blue lead (system control terminal), connect it to the blue lead (male) of this unit, without connecting anything to the red/white lead of this unit. If the car stereo does not

have a blue lead (system control terminal), connect the red/white lead or red lead of the car stereo to the red/white lead of the unit.

- The blue lead of a PIONEER car stereo to be connected to the unit may have an auto-antenna terminal. If it does, it cannot be connected to the blue lead (system control terminal) of the unit, so read the section on connections in the car stereo's owner's manual. If no sound comes from the speakers during the playing of a tape after they have been connected to the unit, connect the red/white or red lead of the car stereo to the red/white lead of the unit.

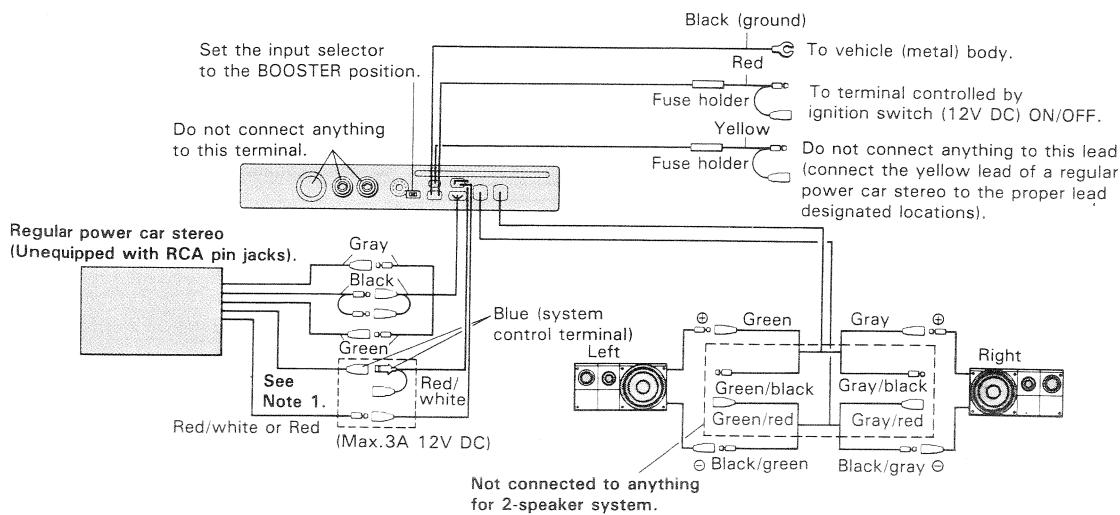
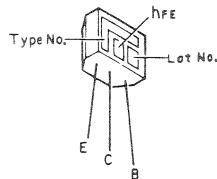


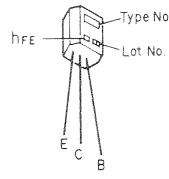
Fig. 12

- ICs and Transistors

2SA933SLN
2SA933

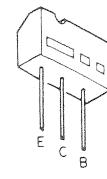
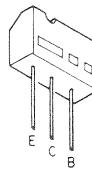


2SC1740SLN

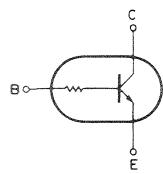


2SB909M
2SD1858
2SB1237
2SC4038
2SA1561

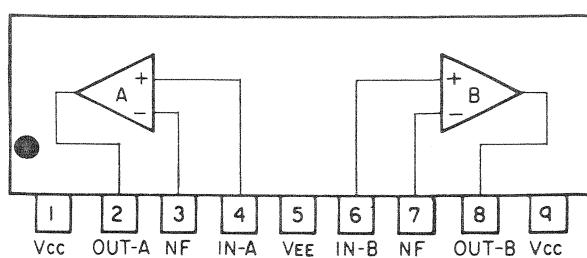
DTC114TF

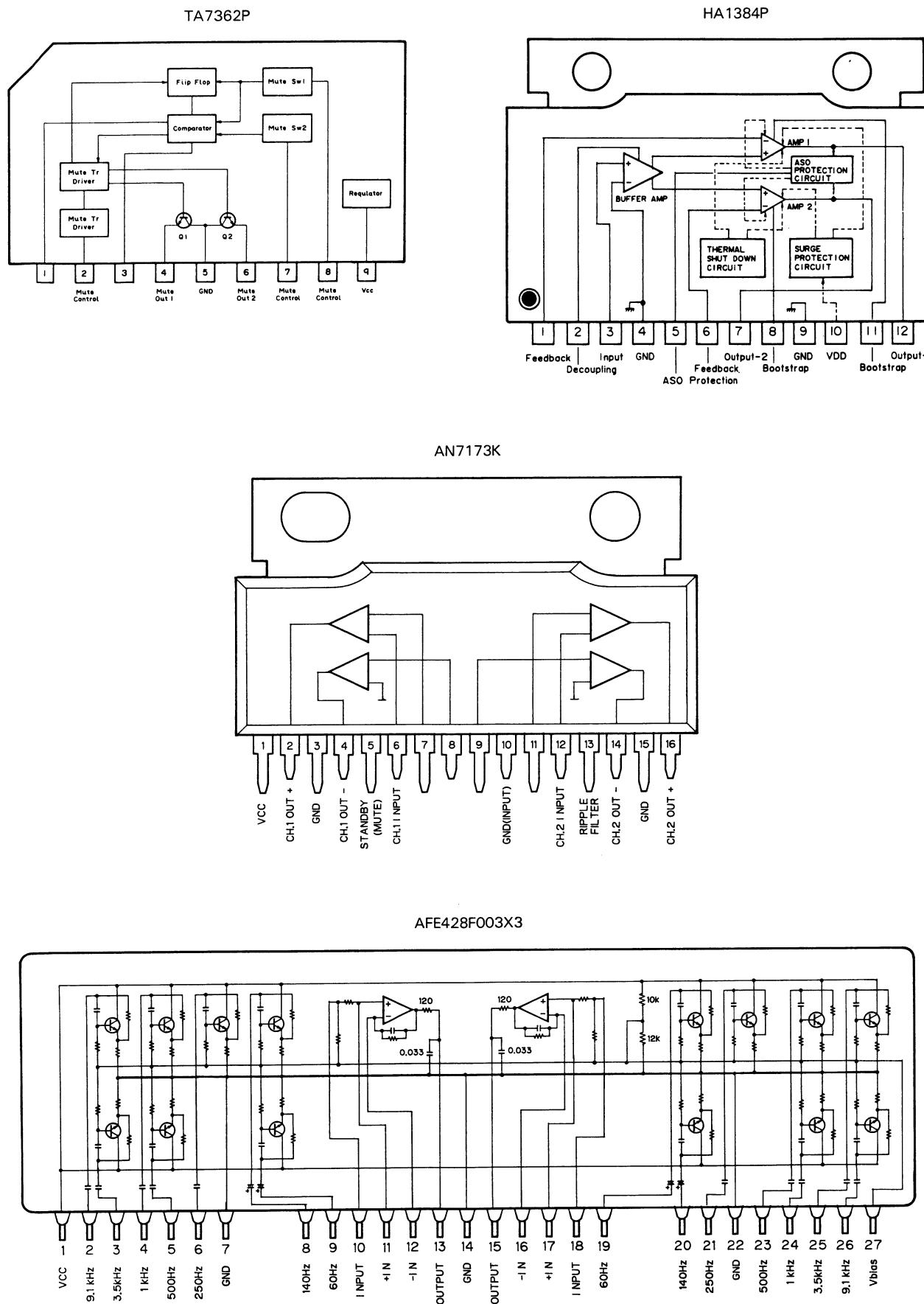


DTC114TF



μPC4570HA





4. LEVEL DIAGRAM

• BP-880

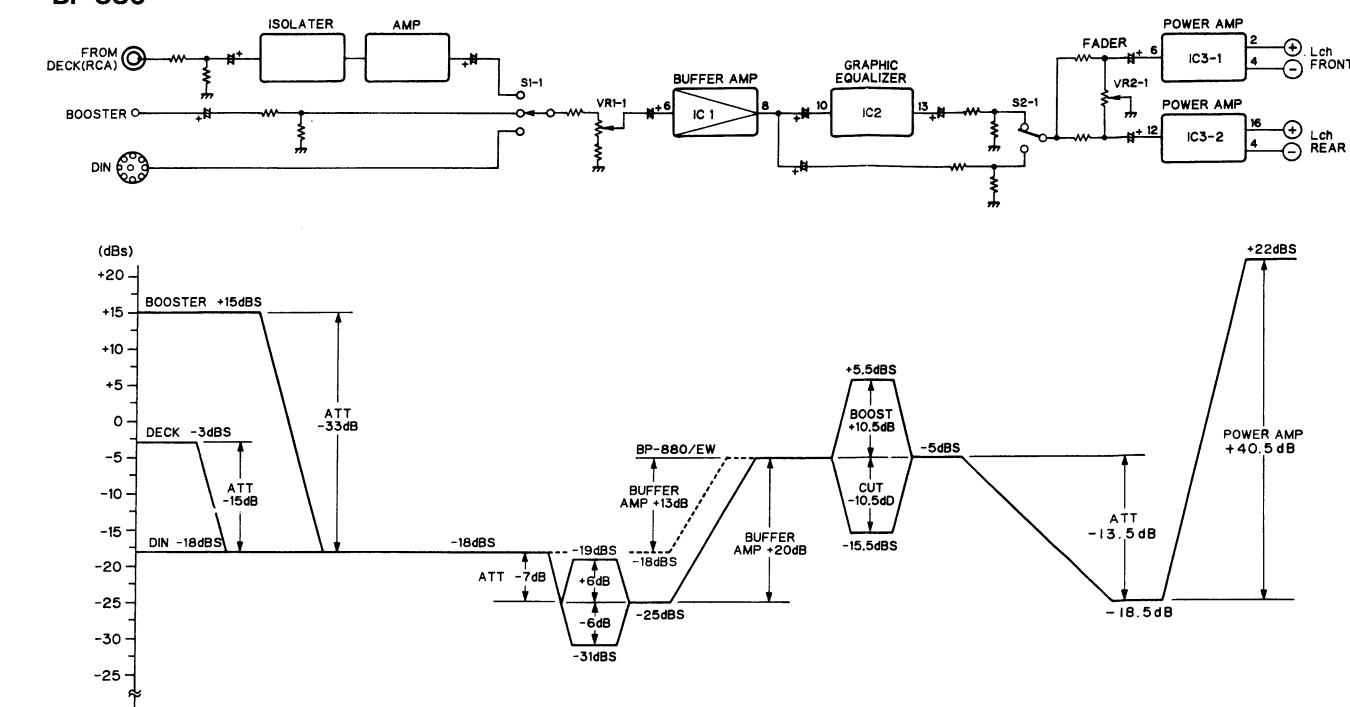


Fig. 13

• BP-650, 450

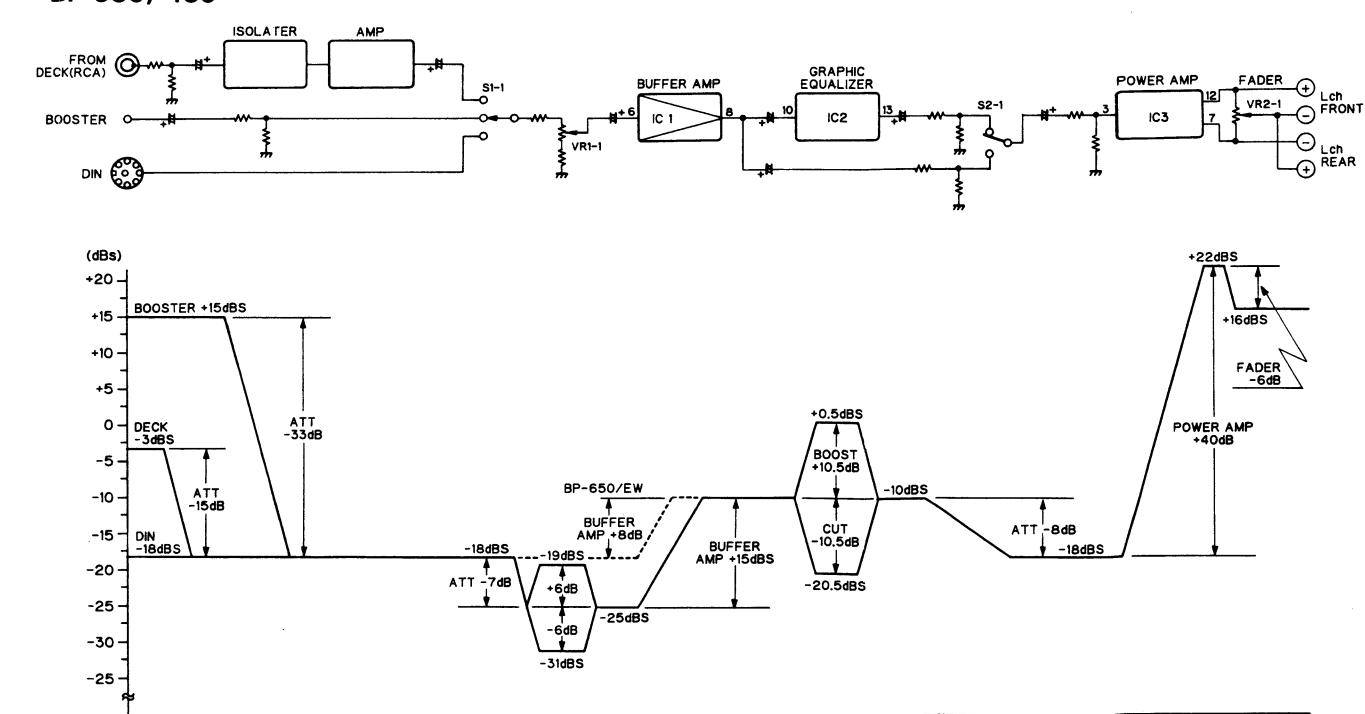
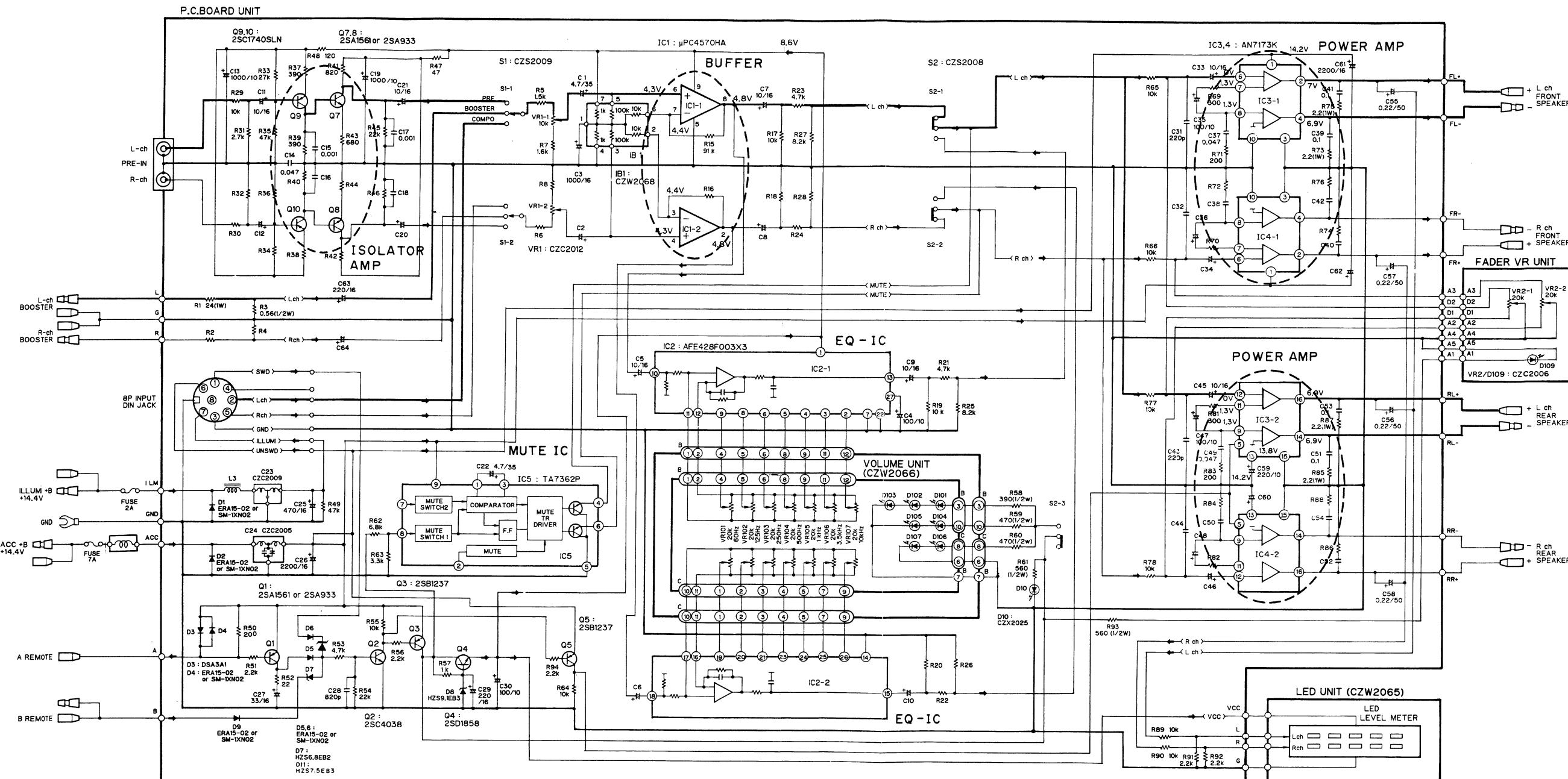


Fig. 14

5. SCHEMATIC CIRCUIT DIAGRAM (BP-880/ES)

A



B

SWITCHES

① P.C. BOARD UNIT

S1 : INPUT SELECTOR SWITCH --- BOOSTER --- COMPO --- PRE

S2 : EQUALIZATION SWITCH ----- ON - OFF

The underlined indicates the switch position.

C

D

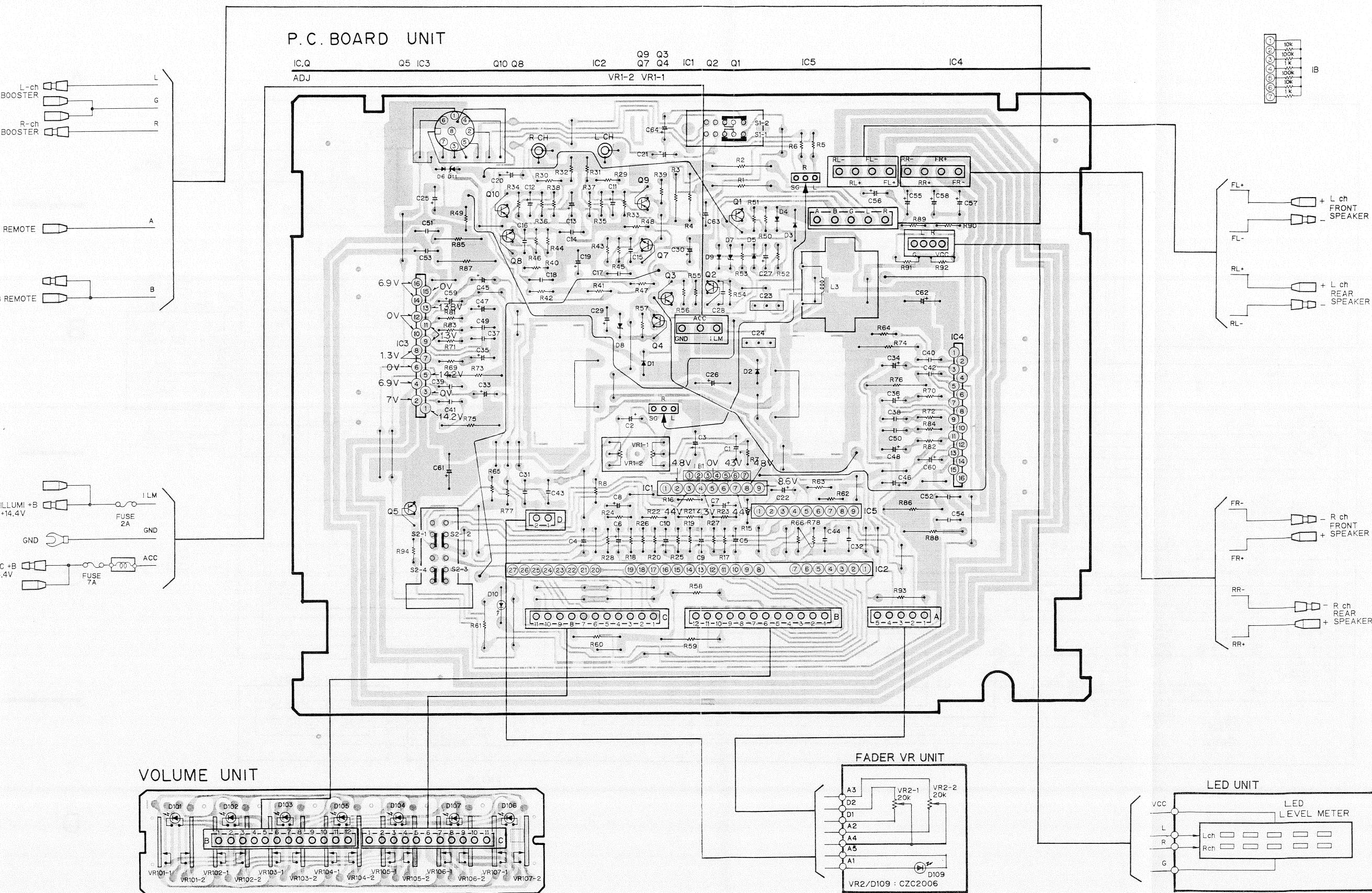
A

B

C

D

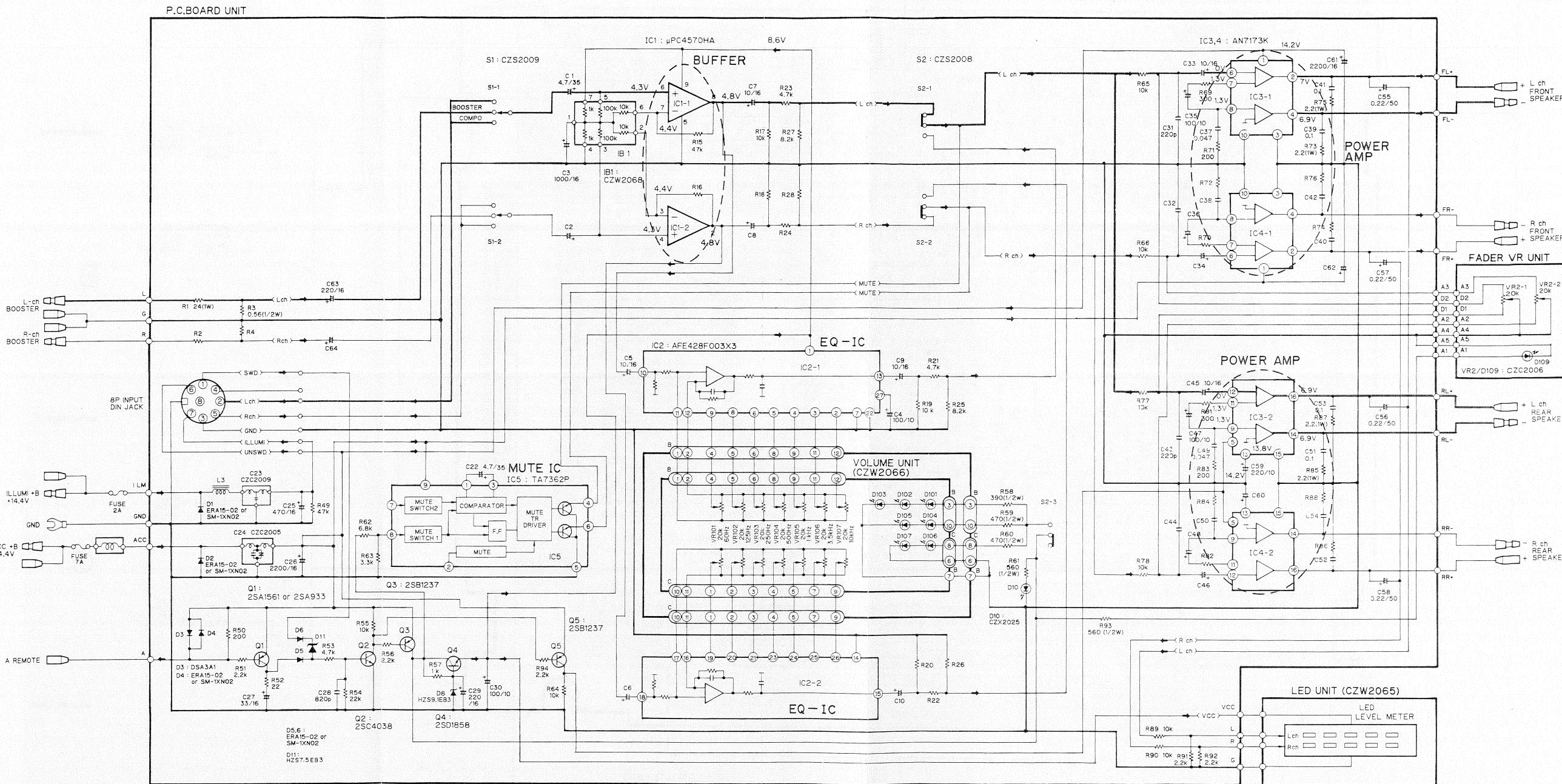
6. CONNECTION DIAGRAM (BP-880/ES)



7. SCHEMATIC CIRCUIT DIAGRAM (BP-880/EW)

A

A



SWITCHES

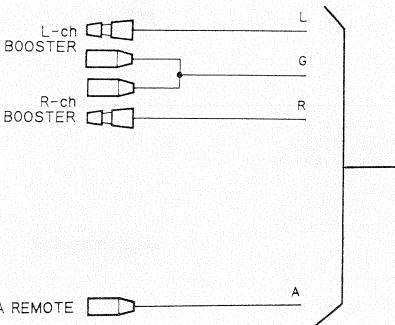
- P.C.BOARD UNIT
 - S1 : INPUT SELECTOR SWITCH---BOOSTER-COMPO
 - S2 : EQUALIZATION SWITCH-----ON-OFF

The underlined indicates the switch position.

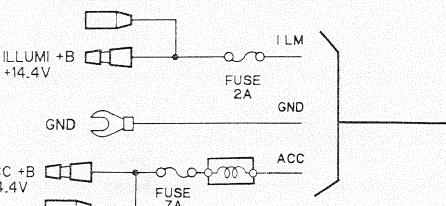
Fig. 17

8. CONNECTION DIAGRAM (BP-880/EW)

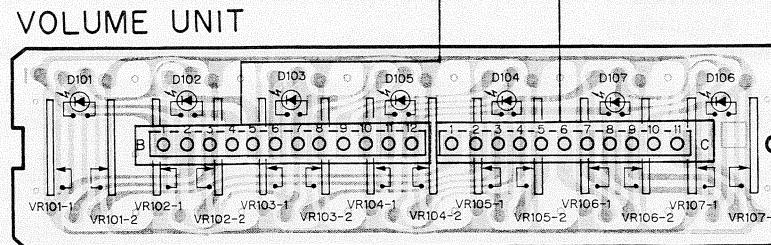
A



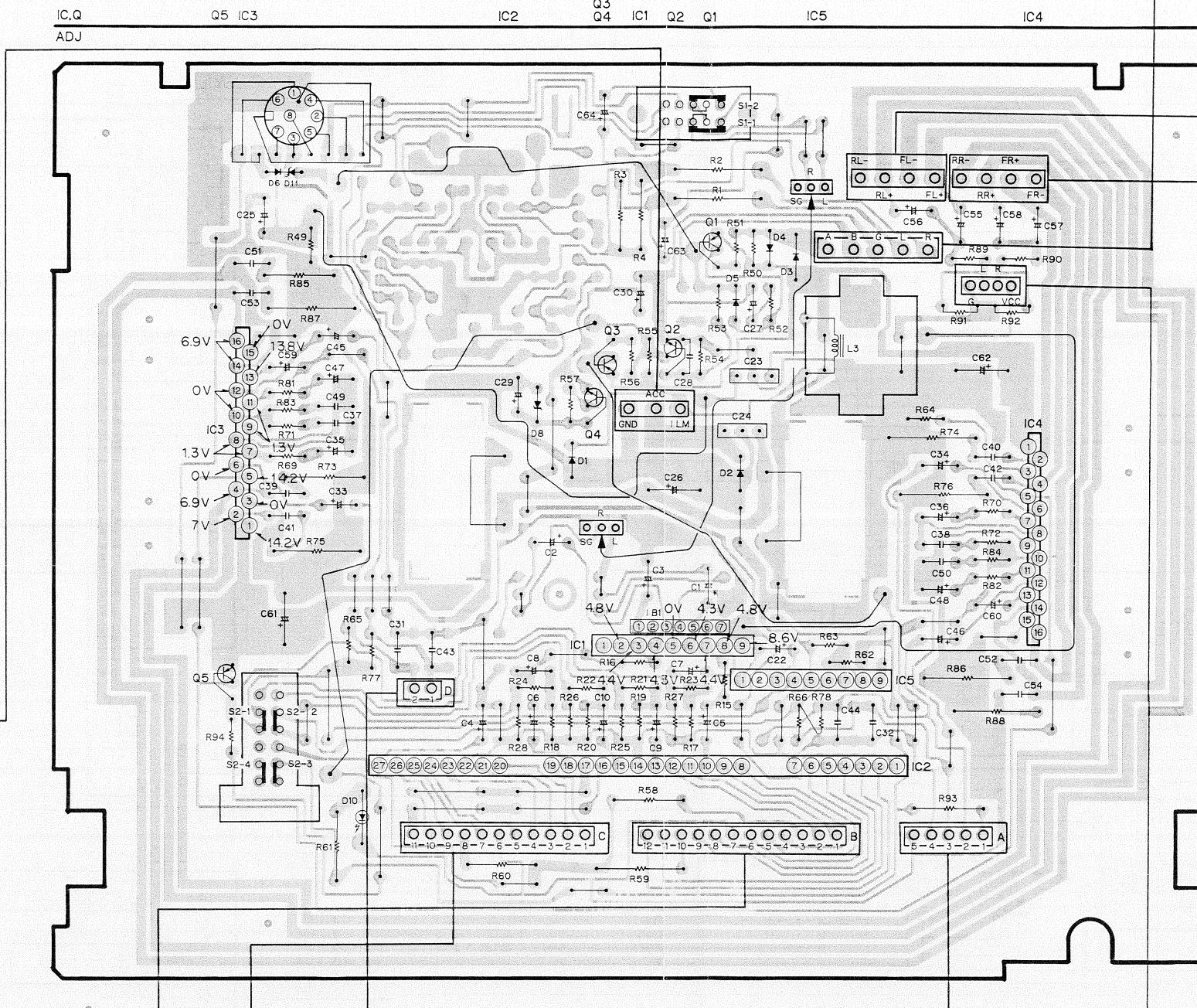
B



D

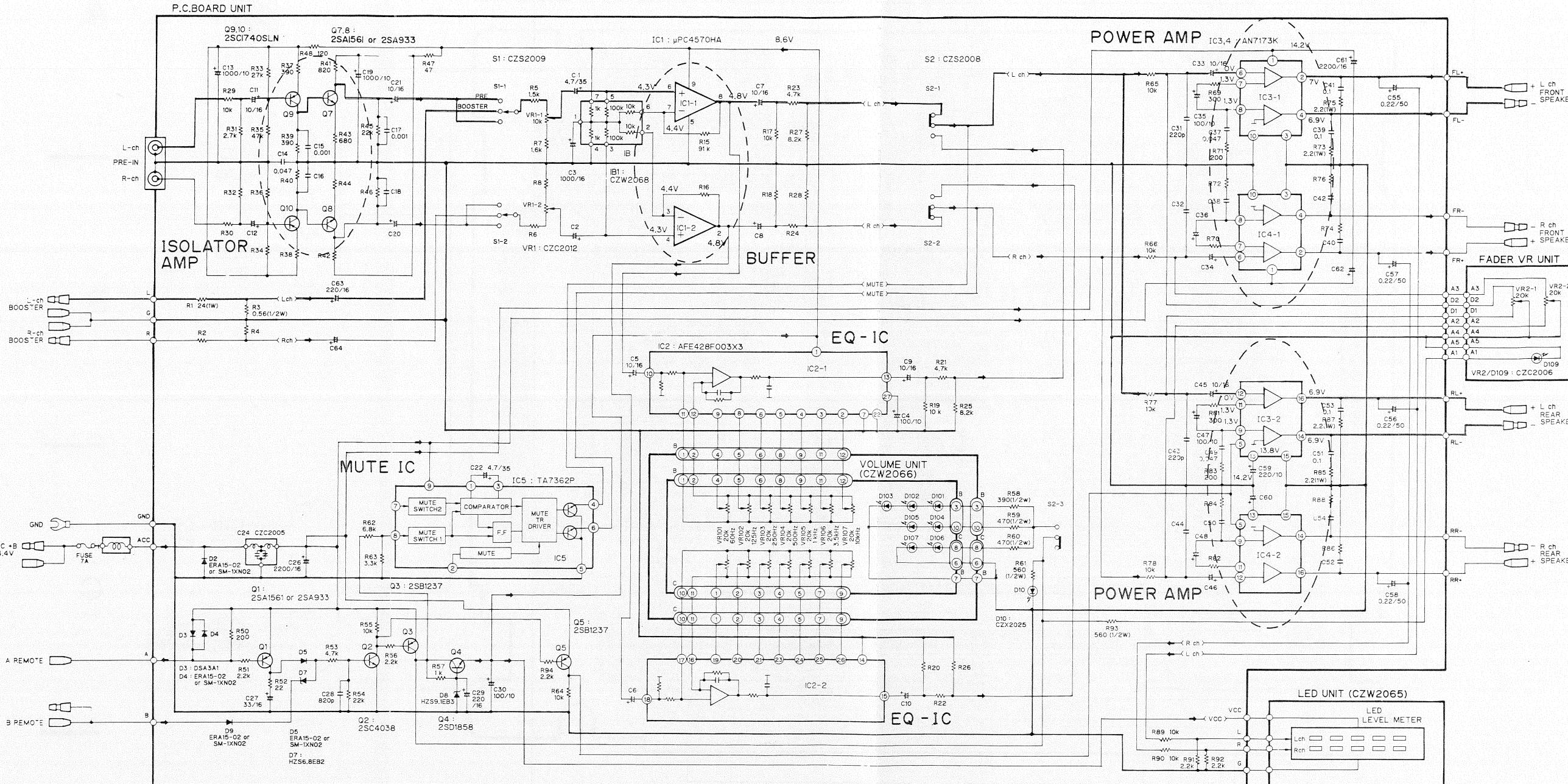


P.C. BOARD UNIT



9. SCHEMATIC CIRCUIT DIAGRAM (BP-880/UC)

A



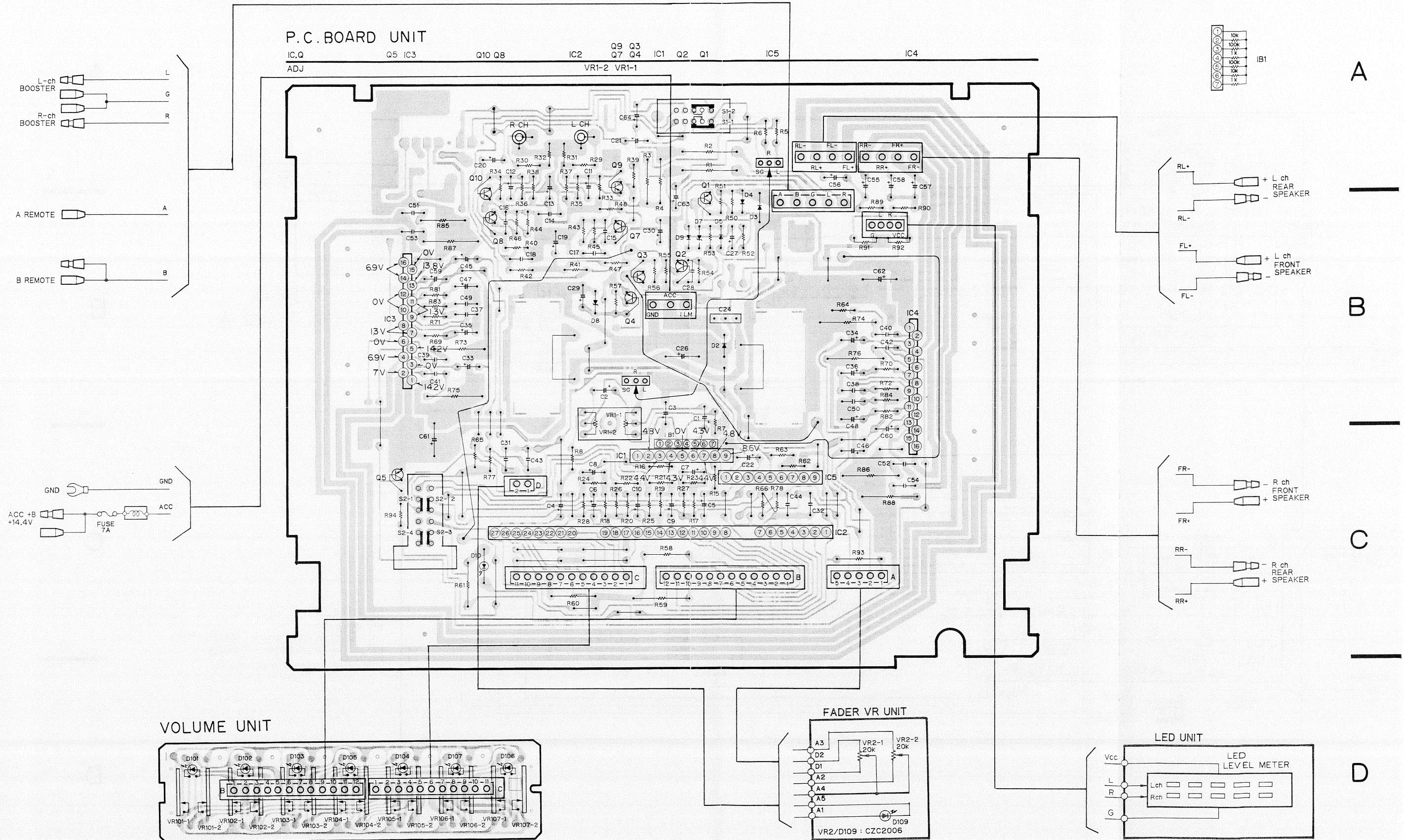
A

B

C

D

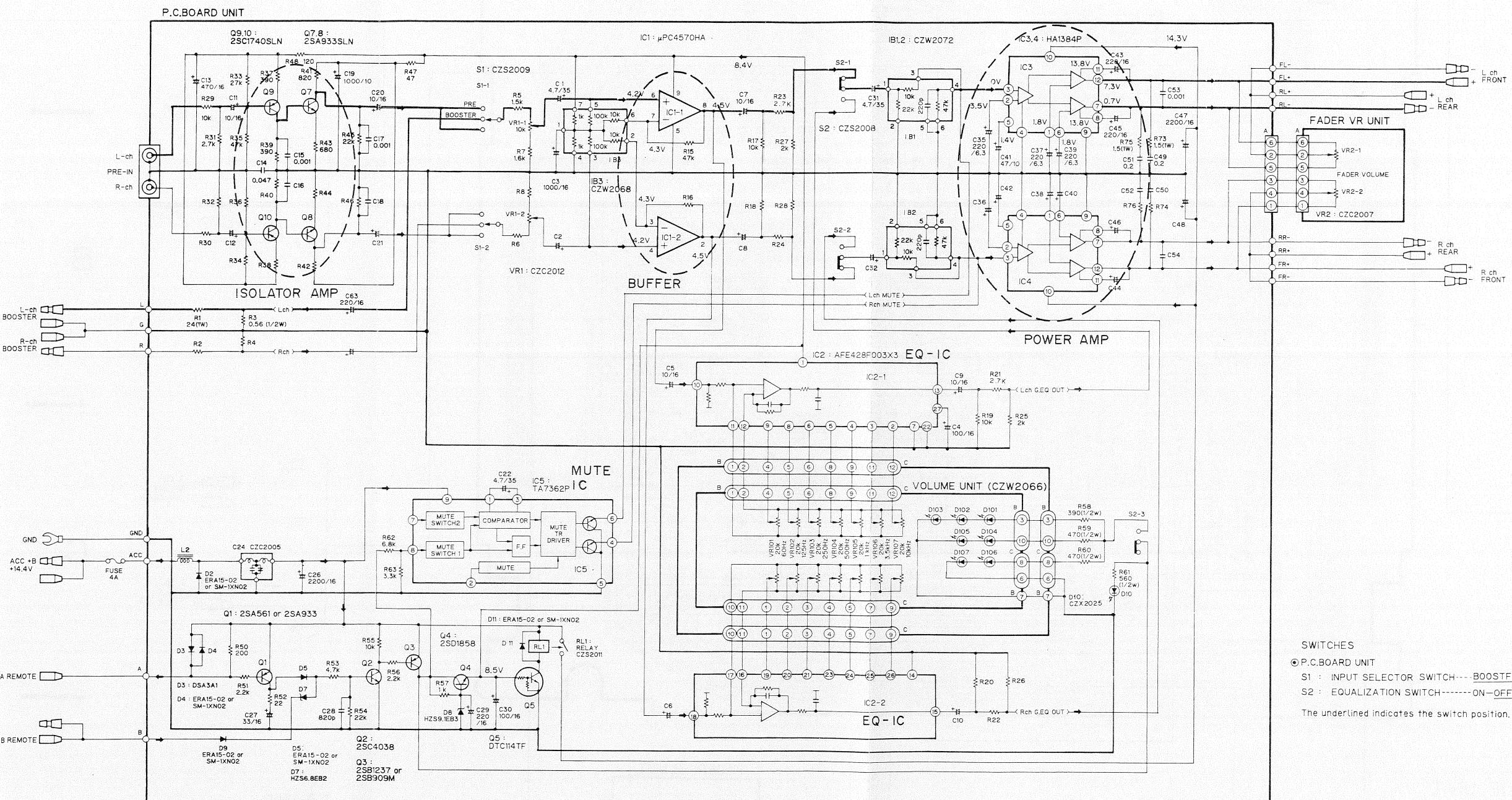
10. CONNECTION DIAGRAM (BP-880/UC)



11. SCHEMATIC CIRCUIT DIAGRAM (BP-650/UC)

A

A



12. CONNECTION DIAGRAM (BP-650/UC)

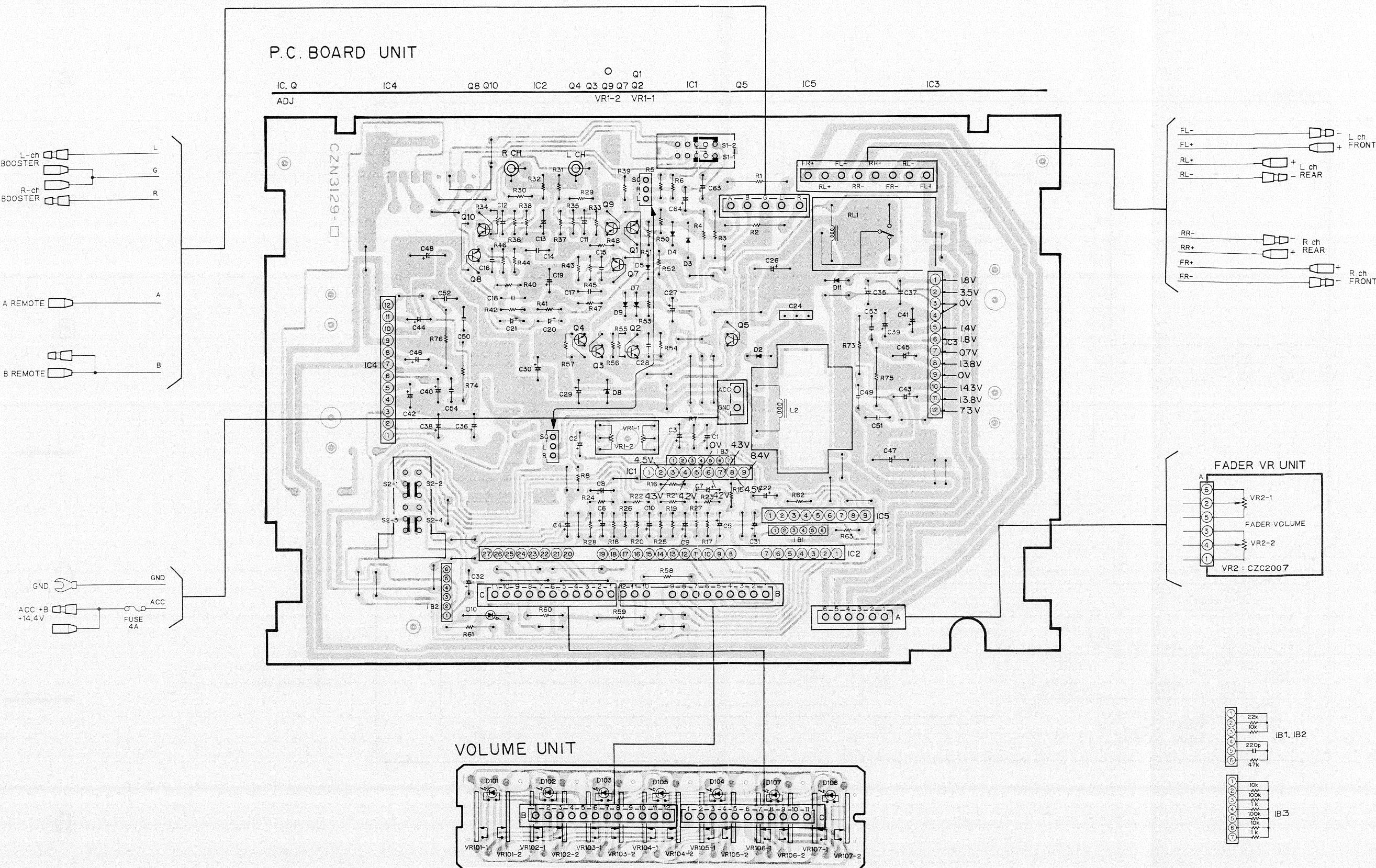
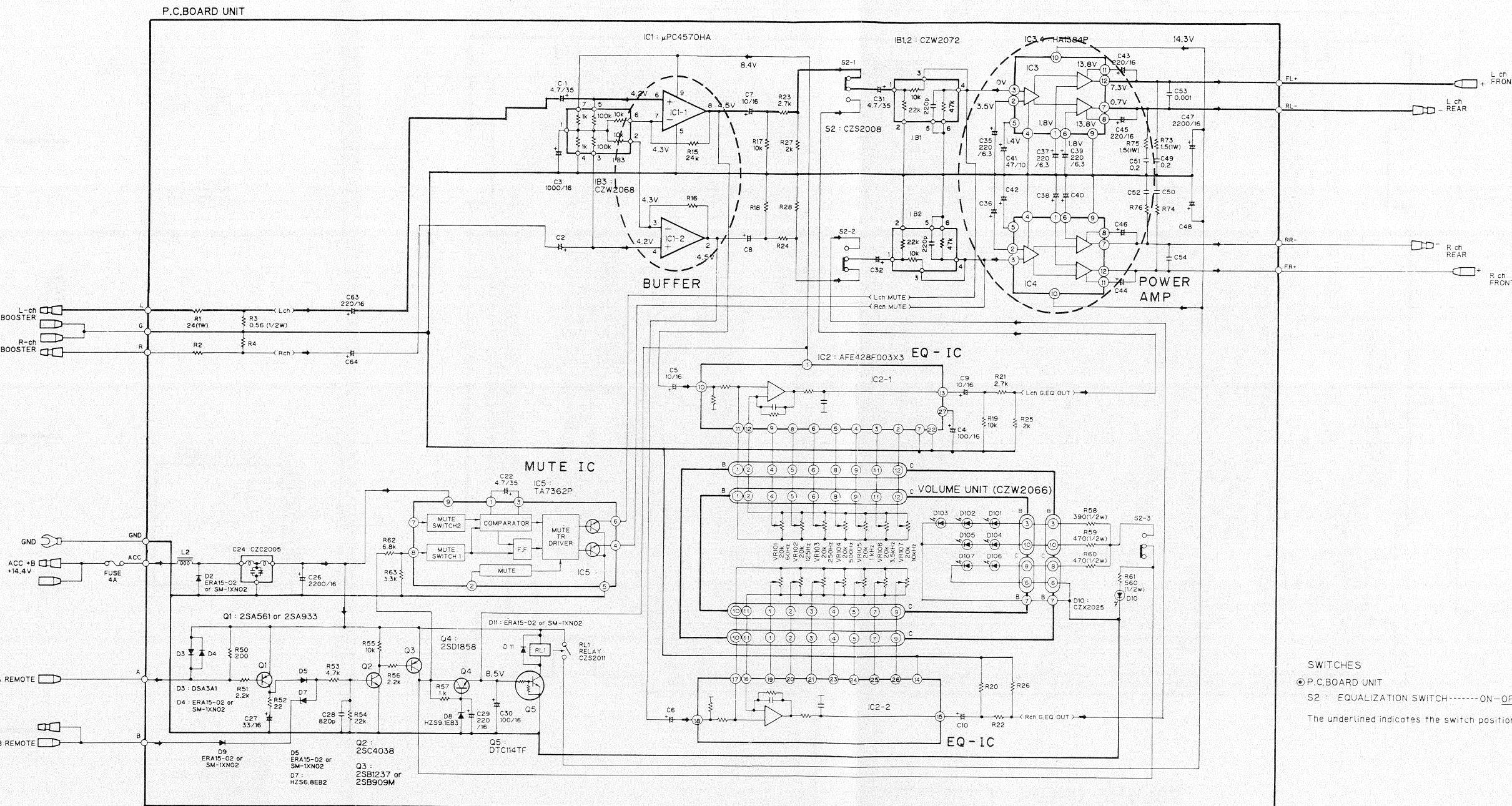


Fig. 22

13. SCHEMATIC CIRCUIT DIAGRAM (BP-450/UC,ES)

A



A

B

C

D

Fig. 23

14. CONNECTION DIAGRAM (BP-450/UC,ES)

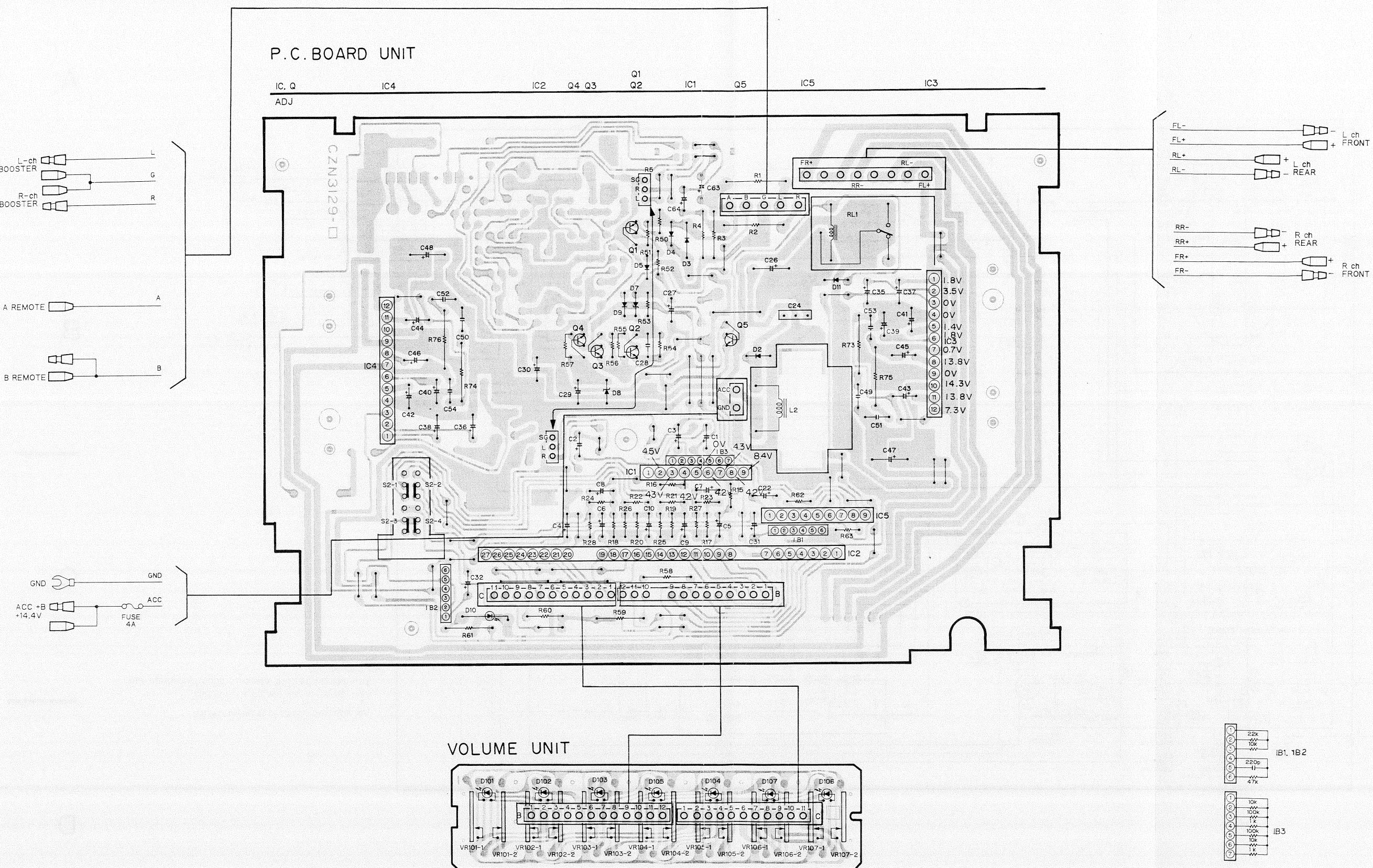


Fig. 24

15. SCHEMATIC CIRCUIT DIAGRAM (BP-650/ES)

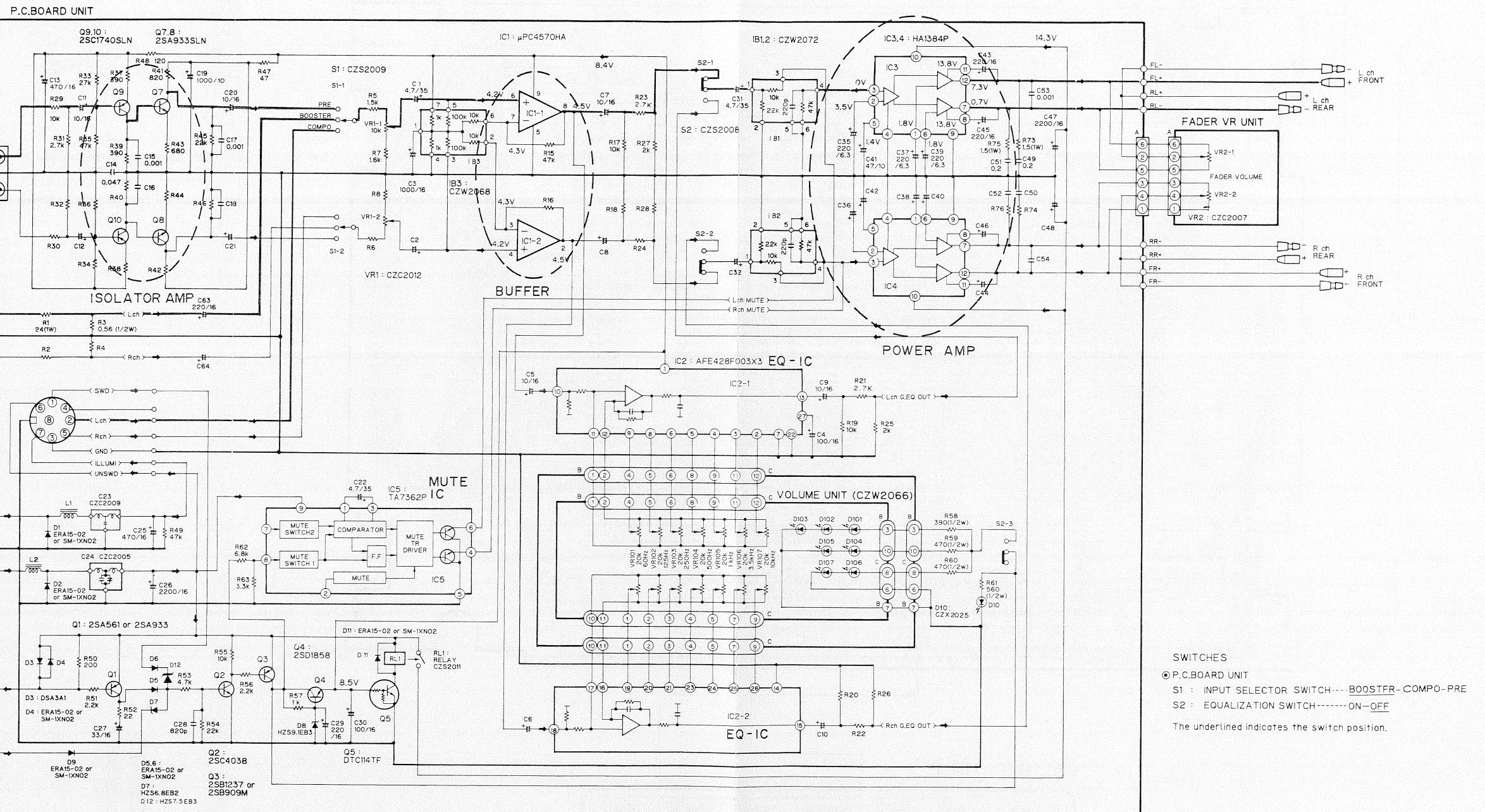


Fig. 25

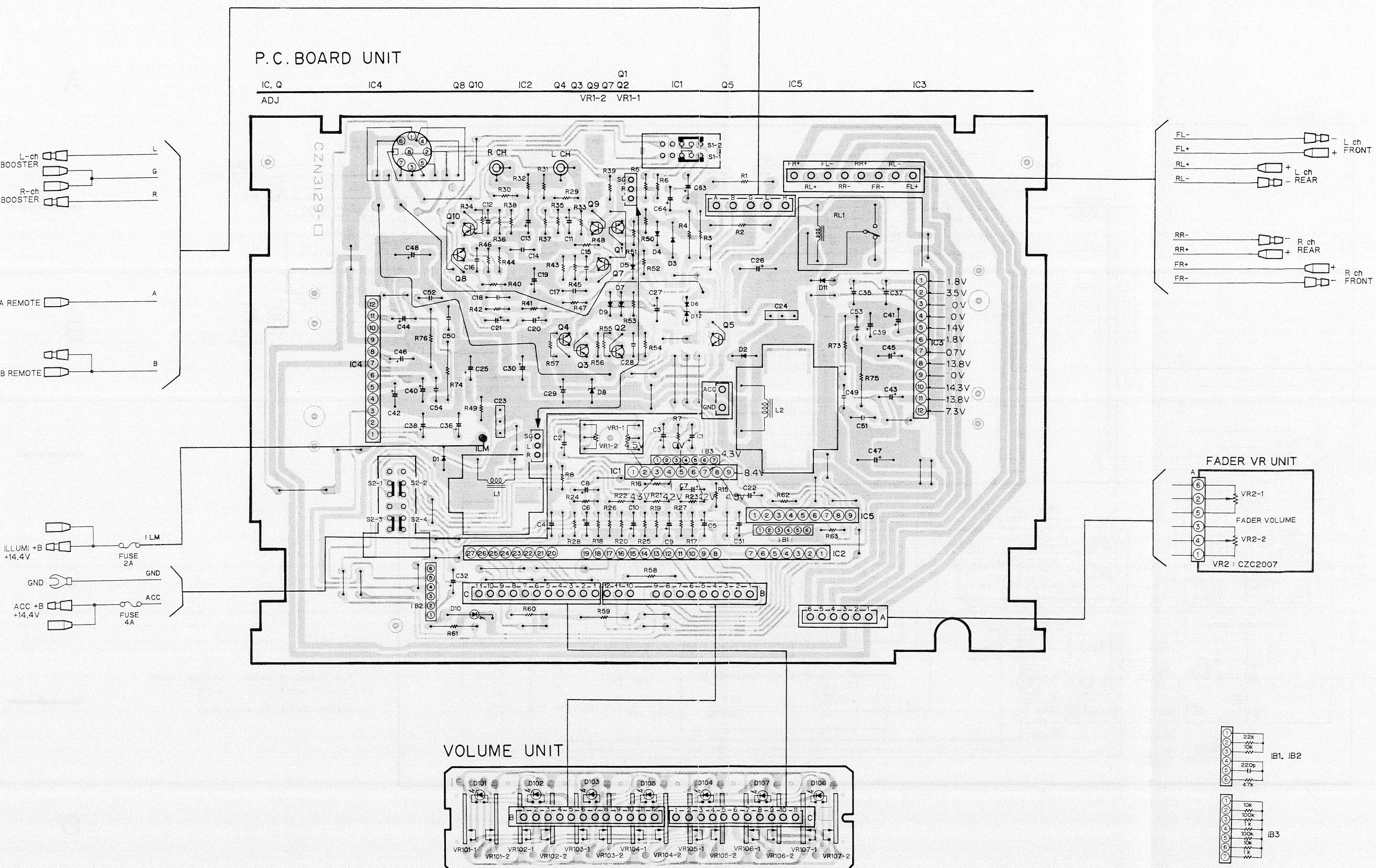


Fig. 26

17. SCHEMATIC CIRCUIT DIAGRAM (BP-650/EW)

A

A

B

B

6

6

SWITCHES
④ P.C.BOARD UNIT
S1 : INPUT SELECTOR SWITCH---BOOSTER-COMPO
S2 : EQUALIZATION SWITCH-----ON-OFF

Fig. 27

18. CONNECTION DIAGRAM (BP-650/EW)

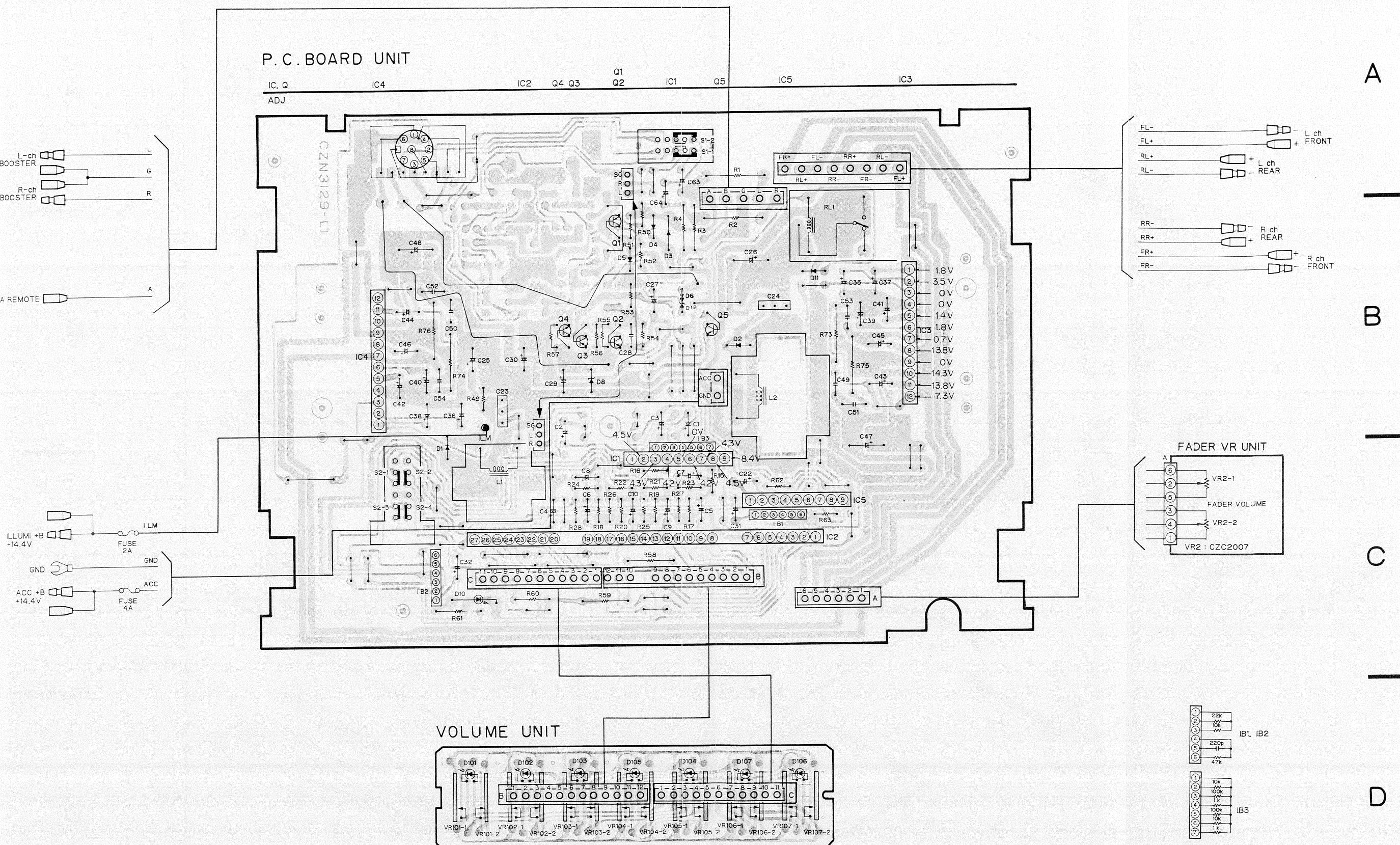
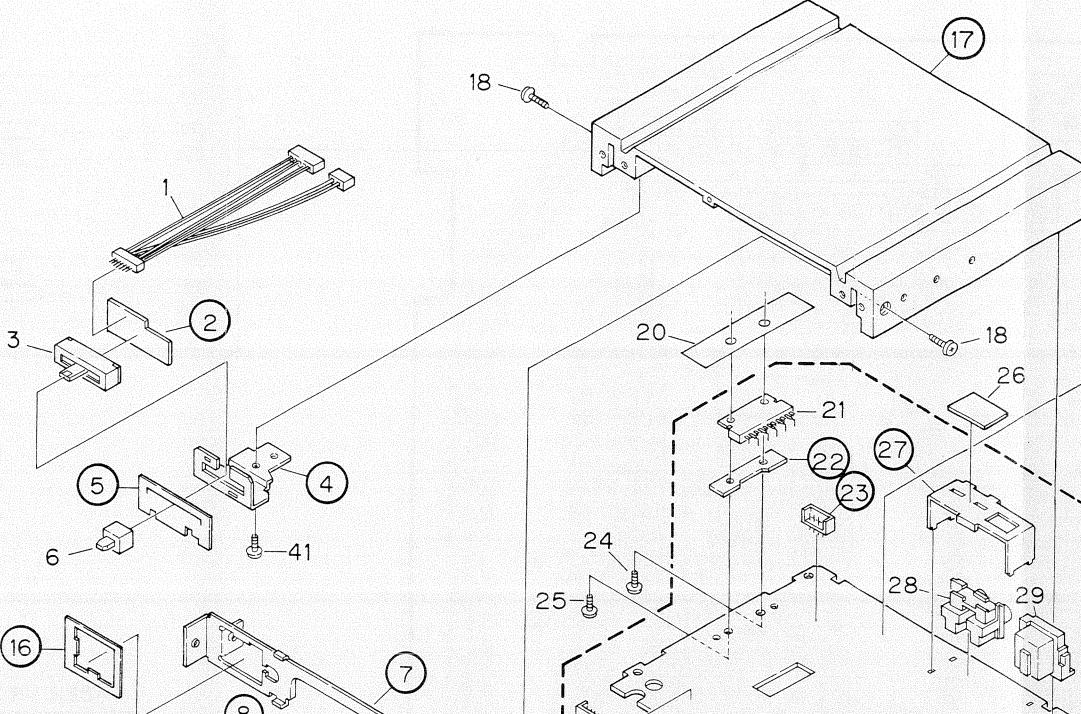


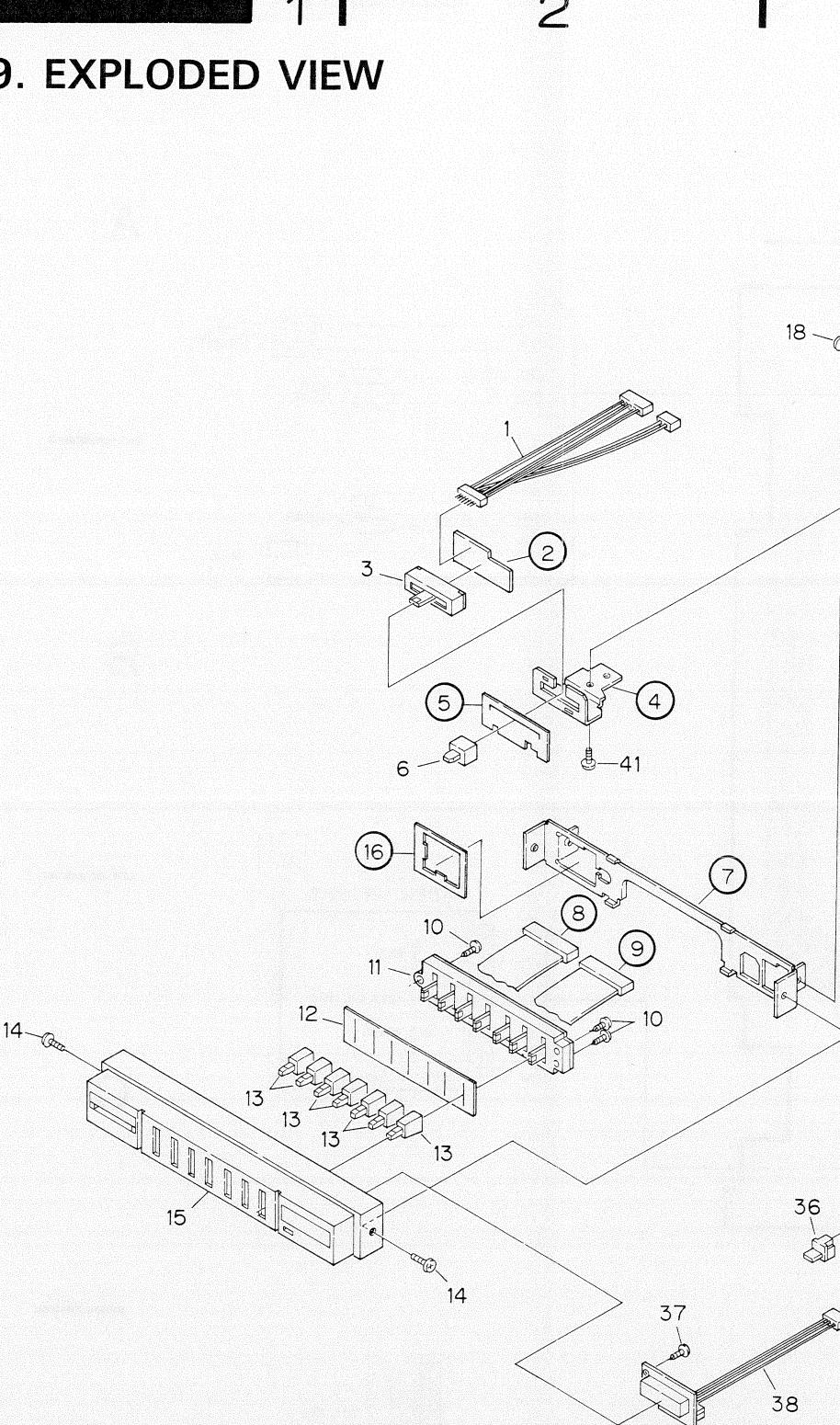
Fig. 28

19. EXPLODED VIEW

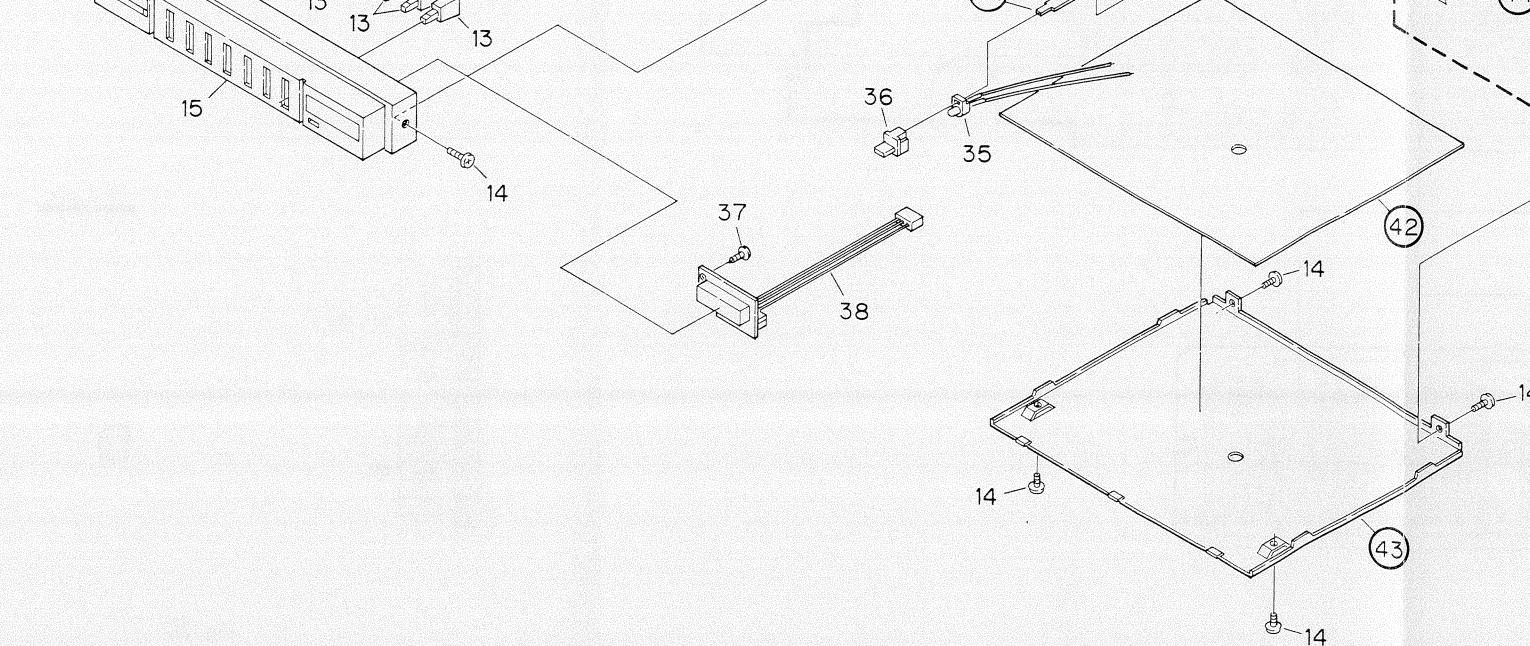
A



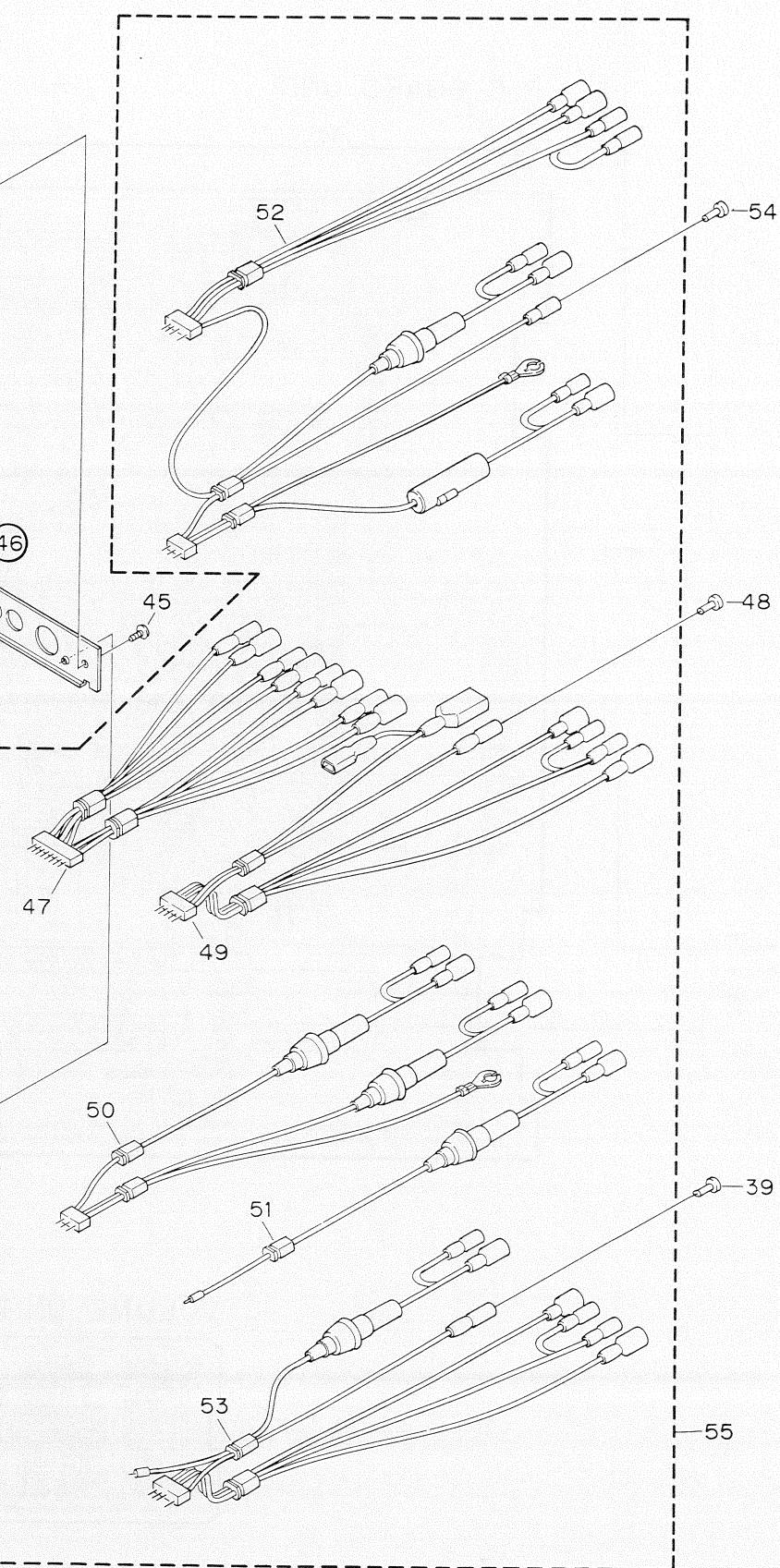
B



C



D



A

B

C

D

Fig. 29

• Parts List

Note:

- For your Parts Stock Control, the fast moving items are indicated with the marks ★★: and ★.
- ★★: GENERALLY MOVES FASTER THAN ★.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- Parts marked by “●” are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1		Connector (7P) (BP-880) Connector (6P) (BP-650)		32		Connector (11P)
★★	2		P.C. Board		33		Cushion
★★	3	CZC2006 CZC2007	Volume (BP-880) Volume (BP-650)		34		Lever
★	4		Holder (BP-880, 650)		35	CZX2025	LED Assy
★	5		Cover (BP-880, 650)	★	36	CZA2053	Button
★	6	CZA2051 CZA2052	Knob (BP-880) Knob (BP-650)		37	PVZ14P045FZK	Screw
	7		Bracket		38	CZW2065	LED Unit (BP-880)
	8		Connector (12P)		39	CKX-003	Cover (BP-650/EW)
	9		Connector (11P)		40	CZB2003	Spacer
	10	PVZ17P080FZK	Screw		41	BMZ26P050FMC	Screw
	11	CZW2066	Volume Unit		42		Insulator
	12		Cover		43		Chassis
★	13	CZA2045	Knob		44		Plug (2P) (BP-880)
★	14	BMZ26P040FZK	Screw		45	BRZ30P080FZK	Screw
★	15	CZX2029 CZX2030 CZX2033	Grille Unit (BP-880/UC,ES) Grille Unit (BP-650/UC,ES) Grille Unit (BP-880/EW)		46		Panel
		CZX2034 CZN3121	Grille Unit (BP-650/EW) Grille (BP-450/UC,ES)		47	CZD2083	Connector Assy (BP-880)
	16		Insulator		48	CZD2090	Connector Assy (BP-650)
	17		Heat Sink			CZD2091	Connector Assy (BP-450)
	18	BMZ26P100FZK	Screw			CKX-003	Cover (BP-880/UC,ES, 650/UC,ES, 450/UC,ES)
	19		Connector (3P)		49	CZD2081	Connector Assy (BP-880/UC,ES, 650/UC,ES, 450/UC,ES)
★★	20	CZN3135	Rubber		50	CZD2082	Connector Assy (BP-880/ES)
★★	21	AN7173K HA1384	IC (BP-880) IC (BP-650, 450)		51	CZD2084	Connector Assy (BP-880/UC)
	22		Spacer		52	CZD2093	Connector Assy (BP-880/EW)
	23		Plug (4P) (BP-880)		53	CZD2092	Connector Assy (BP-650/EW)
	24	BMZ30P100FZK	Screw		54	CKX-003	Cover (BP-650/EW)
	25	BMZ30P080FMC	Screw	●	55	CZW2073	P.C. Board Unit (BP-880/UC)
	26	CZN3131	Spacer			CZW2074	P.C. Board Unit (BP-880/ES)
	27		Bracket (BP-880, 650)			CZW2075	P.C. Board Unit (BP-880/EW)
	28	CZK2006	Jack (BP-880, 650)			CZW2076	P.C. Board Unit (BP-650/UC)
	29	CZK2007	DIN Connector (BP-880, 650)			CZW2077	P.C. Board Unit (BP-650/ES)
	30		Plug (5P) (BP-880) Plug (6P) (BP-650)			CZW2078	P.C. Board Unit (BP-650/EW)
	31		Connector (12P)			CZW2079	P.C. Board Unit (BP-450/UC,ES)

20. ELECTRICAL PARTS LIST

NOTE:

When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	56×10^3	561	RD1/4PS	5 6 1 J
47kΩ	47×10^3	473	RD1/4PS	4 7 3 J
0.5Ω	0R5		RN2H	0 R 5 K
1Ω	010		RS1P	0 1 0 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	5.62×10^3	5.62	RN1/4SR	5 6 2 1 F
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- For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.

★★: GENERALLY MOVES FASTER THAN ★.

This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

- Parts whose parts numbers are omitted are subject to being not supplied.

P.C. Board Unit (BP-880)

MISCELLANEOUS

Mark	Symbol & Description	Part No.
★★ IC1		μPC4570HA
★★ IC2		AFE428F003X3
★★ IC3, 4		AN7173K
★★ IC5		TA7362P
★★ Q1		2SA1561
		(2SA933)
★★ Q2		2SC4038
★★ Q3, 5		2SB1237
★★ Q4		2SD1858
★★ Q7, 8	(BP-880/UC,ES)	2SA1561
		(2SA933)
★★ Q9, 10	(BP-880/UC,ES)	2SC1740SLN
★ D1	(BP-880/EW,ES)	SM-1XN02 (ERA15-02)
★ D2, 4, 5		SM-1XN02 (ERA15-02)
★ D3		DSA3A1
★ D6	(BP-880/EW,ES)	SM-1XN02 (ERA15-02)
★ D7	(BP-880/UC,ES)	HZS6R8EB2
★ D8		HZS9R1EB3
★ D9	(BP-880/UC,ES)	SM-1XN02 (ERA15-02)
★ D10	LED Assy	CZX2025
★ D11	(BP-880/EW,ES)	HZS7R5EB3
L3	Coil (BP-880/EW,ES)	CTF-002
IB1		CZW2068
★★ S1	Switch (INPUT SELECTOR)	CZS2009
★★ S2	Switch (EQUALIZATION)	CZS2008
★★ VR1	Volume, 10 kΩ	CZC2012
	(BP-880/UC,ES)	

RESISTORS (BP-880)

Mark	Symbol & Description	Part No.
	R1, 2, 73 – 76, 85 – 88	RS1P□□□JL
	R3, 4	RS1/2P□□□JL
	R5 – 8, 29 – 48 (BP-880/UC,ES)	RD1/6PM□□□J
	R15 – 28, 50 – 57, 62 – 66, 69 – 72, 77, 78, 81 – 84, 89 – 92, 94	RD1/6PM□□□J
	R49 (BP-880/EW,ES)	RD1/6PM□□□J
	R58 – 61, 93	RD1/2PM□□□JL
CAPACITORS (BP-880)		
Mark	Symbol & Description	Part No.
★★ Q9, 10	(BP-880/UC,ES)	C1, 2, 22
★ D1	(BP-880/EW,ES)	C3 1,000 μF/16 V
★ D2, 4, 5		C4, 30, 35, 36, 47, 48
		C5 – 10
		C11, 12, 20, 21 (BP-880/UC,ES)
★ D3		C13, 19 (BP-880/UC,ES)
★ D6	(BP-880/EW,ES)	C14 (BP-880/UC,ES)
★ D7	(BP-880/UC,ES)	C15 – 18 (BP-880/UC,ES)
★ D8		C23 (BP-880/EW,ES)
★ D9	(BP-880/UC,ES)	C24 (BP-880/EW,ES)
★ D10	LED Assy	C25 (BP-880/EW,ES)
★ D11	(BP-880/EW,ES)	C26, 61, 62 2,200 μF/16 V
L3	Coil (BP-880/EW,ES)	C27
IB1		C28
★★ S1	Switch (INPUT SELECTOR)	C29
★★ S2	Switch (EQUALIZATION)	C31, 32, 43, 44
★★ VR1	Volume, 10 kΩ	C33, 34, 45, 46
	(BP-880/UC,ES)	C37, 38, 49, 50
		C39 – 42, 51 – 54

Mark	Symbol & Description	Part No.
C55 – 58		CEAR22M50L2
C59, 60		CEA221M10L2
C63, 64		CEA221M16L2

P.C. Board Unit (BP-650)

MISCELLANEOUS

Mark	Symbol & Description	Part No.
★ ★ IC1		µPC4570HA
★ ★ IC2		AFE428F003X3
★ ★ IC3, 4		HA1384P
★ ★ IC5		TA7362P
★ ★ Q1		2SA1561
		(2SA933)
★ ★ Q2		2SC4038
★ ★ Q3		2SB1237
★ ★ Q4		(2SB909M)
		2SD1858
★ ★ Q5		DTC114TF
★ ★ Q7, 8	(BP-650/UC,ES)	2SA933SLN
★ ★ Q9, 10	(BP-650/UC,ES)	2SC1740SLN
★ D1	(BP-650/EW,ES)	SM-1XN02 (ERA15-02)
★ D2, 4, 5		SM-1XN02 (ERA15-02)
★ D3		DSA3A1
★ D6	(BP-650/EW,ES)	SM-1XN02 (ERA15-02)
★ D7	(BP-650/UC,ES)	HZS6R8EB2
★ D8		HZS9R1EB3
★ D9	(BP-650/UC,ES)	SM-1XN02 (ERA15-02)
★ D10	LED Assy	CXZ2025
★ D11		SM-1XN02 (ERA15-02)
★ D12	(BP-650/ES,EW)	HZS7R5EB3
L1	Coil (BP-650/EW,ES)	CTF-001
L2	Transformer	CTH1001
IB1, 2		CZW2072
IB3		CZW2068
RL1	Relay	CZS2011
★ ★ S1	Switch (INPUT SELECTOR)	CZS2009
★ ★ S2	Switch (EQUALIZATION)	CZS2008
★ ★ VR1	Volume, 10 kΩ (BP-650/UC,ES)	CZC2012

RESISTORS (BP-650)

Mark	Symbol & Description	Part No.
R1, 2, 73 – 76		RS1P□□□JL
R3, 4		RS1/2P□□□JL
R5 – 8, 29 – 48	(BP-650/UC,ES)	RD1/6PM□□□J
R15 – 28, 50 – 57, 62, 63		RD1/6PM□□□J
R49	(BP-650/EW)	RD1/6PM□□□J
R58 – 61		RD1/2PM□□□JL

CAPACITORS (BP-650)

Mark	Symbol & Description	Part No.
C1, 2, 22, 31, 32		CEA4R7M35L2
C3	1,000 µF/16 V	CZC2014
C4		CEA101M16L2
C5 – 10		CEA100M16L2
C11, 12, 20, 21	(BP-650/UC,ES)	CEA100M16L2
C13	(BP-650/UC,ES)	CEA471M16L2
C14	(BP-650/UC,ES)	CQMA473J50
C15 – 18	(BP-650/UC,ES)	CKPYB102K50L
C19	(BP-650/UC,ES)	CZC2015
C23	(BP-650/EW,ES)	CZC2009
C24		CZC2005
C25	(BP-650/EW,ES)	CEA471M16L2
C26, 47, 48	2,200 µF/16 V	CZC2013
C27		CEA330M16L2
C28		CKPYB821K50L
C29, 43 – 46		CEA221M16L2
C30		CEA101M16L2
C35 – 40		CEA221M6R3L2
C41, 42		CEA470M10L2
C49 – 52		CGDYX204K25L
C53, 54		CKPYB102K50L
C63, 64		CEA221M16L2

P.C. Board Unit (BP-450)

MISCELLANEOUS

Mark	Symbol & Description	Part No.
★ ★ IC1		µPC4570HA
★ ★ IC2		AFE428F003X3
★ ★ IC3, 4		HA1384P
★ ★ IC5		TA7362P
★ ★ Q1		2SA1561
		(2SA933)
★ ★ Q2		2SC4038
★ ★ Q3		2SB1237
★ ★ Q4		(2SB909M)
		2SD1858
★ ★ Q5		DTC114TF
★ D2, 4, 5, 9, 11		SM-1XN02 (ERA15-02)
★ D3		DSA3A1
★ D7		HZS6R8EB2
★ D8		HZS9R1EB3
★ D10	LED Assy	CZX2025
L2	Transformer	CTH1001
IB1, 2		CZW2072
IB3		CZW2068
RL1	Relay	CZS2011
★ ★ S2	Switch (EQUALIZATION)	CZS2008

RL1	Relay	CZS2011
★ ★ S2	Switch (EQUALIZATION)	CZS2008

RESISTORS (BP-450)

Mark	Symbol & Description	Part No.
	R1, 2, 73 – 76	RS1P□□□JL
	R3, 4	RS1/2P□□□J
	R15 – 28, 50 – 57, 62, 63	RD1/6PM□□□J
	R58 – 61	RD1/2PM□□□JL

CAPACITORS (BP-450)

Mark	Symbol & Description	Part No.
	C1, 2, 22, 31, 32	CEA4R7M35L2
	C3	CZC2014
	C4	CEA101M16L2
	C5 – 10	CEA100M16L2
	C24	CZC2005
	C26, 47; 48	CZC2013
	C27	CEA330M16L2
	C28	CKPYB821K50L
	C29, 43 – 46	CEA221M16L2
	C30	CEA101M16L2
	C35 – 40	CEA221M6R3L2
	C41, 42	CEA470M10L2
	C49 – 52	CGDYX204K25L
	C53, 54	CKPYB102K50L
	C63, 64	CEA221M16L2

Fader VR Unit

Mark	Symbol & Description	Part No.
★ ★	VR2/D109	Volume (BP-880)
★ ★	VR2	Volume (BP-650)

21. PACKING METHOD

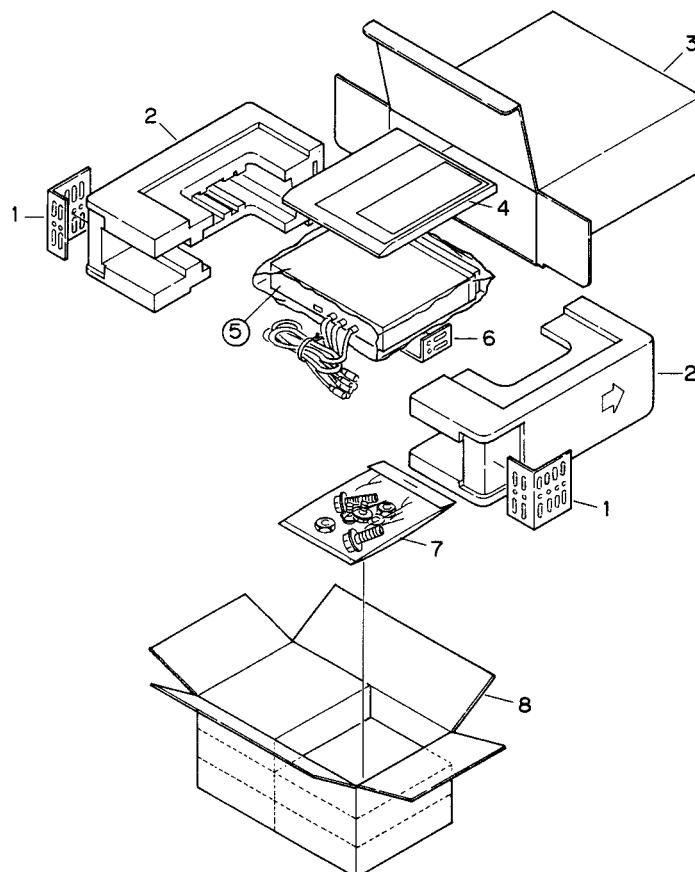


Fig. 30

• Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	CNB1159	Mounting Bracket (BP-880/UC, 650/UC, 450/UC)		5		Cover
	2	CZH3110	Styrofoam (BP-880)		6	CNB-720	Mounting Bracket (BP-880/EW,ES, 650/EW,ES, 450/ES)
	3	CZH3111	Styrofoam (BP-650, 450)		7	CZE2017	Screw Assy
	3	CZH3112	Carton (BP-880/UC)				
	CZH3114		Carton (BP-880/ES)				(BP-880/EW,ES, 650/EW,ES, 450/ES)
	CZH3116		Carton (BP-880/EW)				Screw Assy
	CZH3118		Carton (BP-650/UC)		CZE2021		(BP-880/UC, 650/UC, 450/UC)
	CZH3120		Carton (BP-650/ES)		7-1	CBA-102	Screw
	CZH3122		Carton (BP-650/EW)		7-2	HMF40P080FZK	
	CZH3124		Carton (BP-450/UC)		7-3	NF50FMC	Screw
	CZH3126		Carton (BP-450/ES)		8	CZH3113	Nut
4	CRD1147		Installation Manual (BP-880/UC, 650/UC, 450/UC)		CZH3119	Contain Box (BP-880/C)	
	CZR2045		Owner's Manual		CZH3125	Contain Box (BP-650/C)	
	CZR2047		(BP-880/UC, 650/UC, 450/UC)			Contain Box (BP-450/C)	
	CZR2048		Owner's Manual (BP-880/ES, 650/ES, 450/ES)				
			Owner's Manual (BP-880/EW, 650/EW)				